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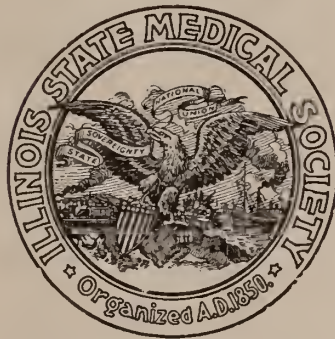
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JULY TO DECEMBER, 1934

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JULY TO DECEMBER, 1934

This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who discussed the papers are also included. Details of society proceedings, including

the titles of papers read, officers elected, etc., can be located in proceedings under Societies, Editorials, News of the State, Marriages, Deaths. The subjects of editorials also appear alphabetically and are marked (E).

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JUL 20 1934  
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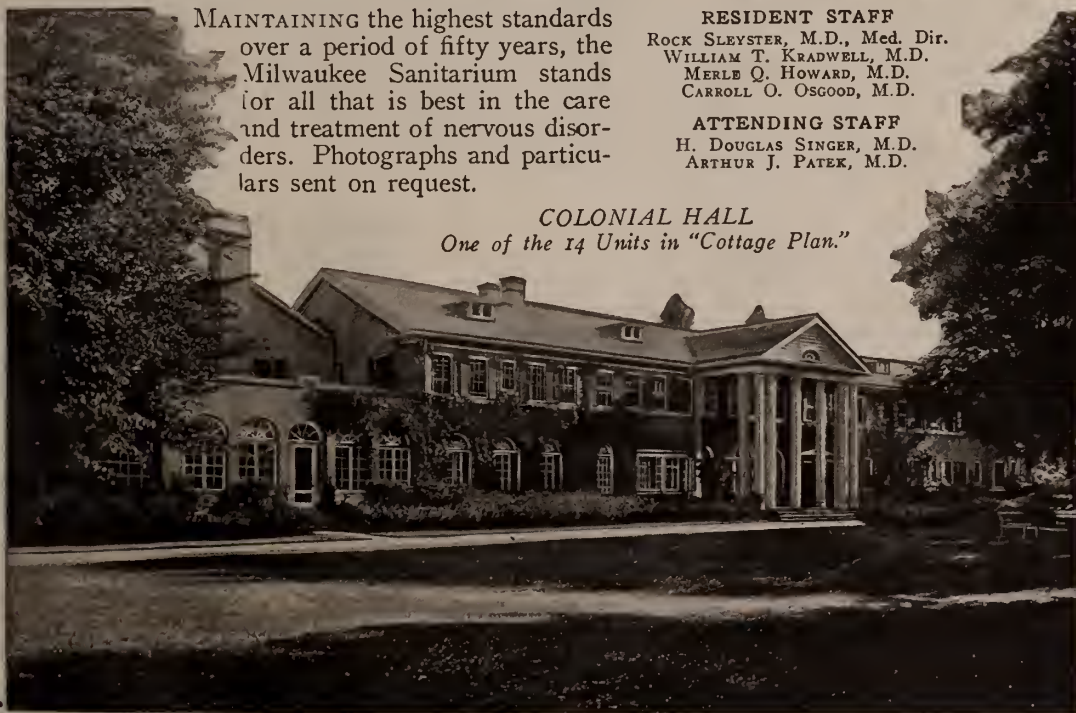
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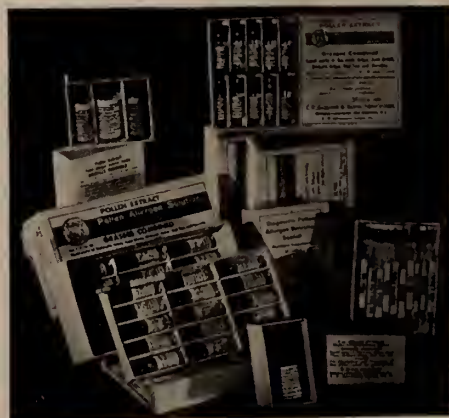
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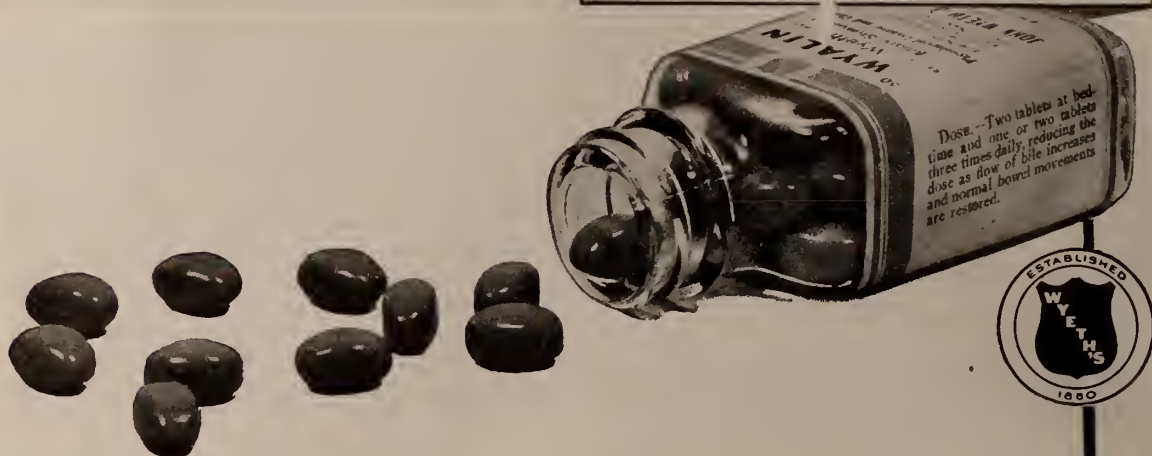
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is loss of substance, the ...  
in such a way as to avoid ... dextrin-malt

There is a widespread opinion that, thanks to improved sanitation, infantile diarrhea is no longer of serious aspect. But Holt and McIntosh declare that diarrhea "is still a problem of the foremost importance, producing a number of deaths each year. . . ." Because dehydration is so often an insidious development even in mild cases, prompt and effective treatment is vital. Little states (Canad. Med. A. J. 13: 803, 1923), "There are cases on record where death has taken place within 24 hours of the time of onset of the first symptoms."

...sugar to a baby, it is well to use a maltose-dextrin preparation, as in this way there is less danger of bringing about sugar fermentation than if lactose were used."—L. W. Hill: *Practical Infant Feeding*. W. B. Saunders Co., Phila., 1922, p. 206.

"The young infants usually take a third milk, usually skimmed, and a half ounce of Dextrin-Maltose. We prepared Dextrin-Maltose as the carbonyl compound, most easily digested. . . . Preparations containing more maltose are more rapidly absorbed, but the more maltose are more rapidly absorbed, but on the other hand, are more liable to produce diarrhea. . . . Lactose which is the most common one time, is never used in our work. The consensus of opinion seems to be that milk sugar is often a source of indigestion in normal infants and the primary cause of fermentative dyspepsias in certain instances. — J. L. Reading, Jr., *Archives of Pediatrics*, July, 1911, during the first year.

Protein milk may be continued for several weeks when a gradual transition to a whole milk or evaporated milk formula, which will supply about one and one-half to two ounces of whole milk for every pound of body weight, is reached. This also should finally have the addition of dextrin-maltose amounting to five to seven per cent. — R. A. Strong: Summer diarrheas in infancy and early childhood, *Arch. Pediat.* 47:344-354, June, 1930.

cause diarrhoea. It a nig-  
be required it is better to  
ose, such as Mead's Nos.  
se is only slightly in excess  
minishing the possibility  
—W. J. Pearson: Graduate Med. 163

"... I begin to add carbohydrates slowly, by replacing  $\frac{1}{4}$  ounce Casee every two days with  $\frac{1}{4}$  ounce of Dextri-Maltose, preferably Dextri-Maltose Number one. As a rule, this is tolerated. When one ounce of Dextri-Maltose is used, the Casee, of course, should be discontinued."

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thea," "Dextrin-maltose  
for they do not ferment  
and leave very little  
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ture." *J. Pharm.*, 1906,  
*Nat.*, 42:743-760, Nov.,

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netose by dextrin-maltose  
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erous less suitable than lactose, and if for any  
reason there is objection to the use of lactose,  
is obtained by the addition of carbohydrates, while  
fat and casein are reduced. For this purpose dex-  
trin and maltose are better than the ordinary  
trimaltose and flour are more slowly absorbed and  
sugars, since they are in their powers or con-  
have greater energy in the large intestine." W. J. Pearson  
the flour in the large intestine." W. J. Pearson  
G. Wyllie: *Recent Advances in Diseases*  
The Glukster's Sox & Co., Phila., 1930,

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No. 1

## ILLINOIS MEDICAL JOURNAL

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## Editorials

### HEREDITY IMPORTANT FACTOR IN ETIOLOGY OF DIABETES MELLITUS

Heredity as a factor in the etiology of diabetes is a premise of increasing acceptance.

This theory permits neither minimization nor displacement of the part that obesity maintains in the etiology of diabetes, even though aiming to demonstrate that it is obesity in individuals with an hereditary diabetic predisposition rather than simple obesity, that holds diabetic danger. Increasingly all scientific findings show that the inherited diabetic characteristic is a defective pancreatic islet tissue, which gives rise to high blood sugar and to low carbohydrate tolerance.

From an ever multiplying body of statistical data becomes readily possible a careful study of this hereditary factor in diabetes. From the standpoint of Mendelian transmission these modern statistics emphasize heredity as a causative factor in diabetic incidence, and reveal, too, that diabetes appears to be a recessive rather than a dominant characteristic.

It is of import to note that the incidences of diabetes are far higher in the families of diabetic patients than in those of non-diabetic persons. There are checked reports to prove that data behavior sets forth that identification of diabetics among parents and children is in accord with Mendelian expectations, provided that the calculations are correct when it comes to the potential number of diabetics in each decade. This finding, of course, demands preliminary acceptance of the assumption that before development of the disease, potential diabetics possess the average general expectation of life. From this it can be demonstrated easily that the observed occurrence of diabetes in children of diabetic families accords with the hypothesis that the potentiality for inheriting diabetes is inherited as a simple Mendelian recessive.

There may lurk some possibility that certain parents are genetically diabetic though classed as non-diabetic. This would indicate in the



hypothesis, either a presumed deficiency resulting from the limitations in the method of collecting family histories, or a deficiency of diabetic children in diabetic families.

It is amply demonstrated too, that a heritable defective pancreatic islet tissue, with resultant high blood sugar and low carbohydrate tolerance is a diabetic characteristic. Now in the diabetic the pancreatic islet tissue fails to attain or to exhibit the functional capacity found in normal individuals. So that any exogenous influence; such as overeating, will naturally give rise to a demand for such an utilization of carbohydrate as will soon exceed the congenitally limited production of insulin and other pancreatic hormones in the potential diabetic. In utilization of dextrose by the tissues, as well as in glycogen storage in the liver, it is found that the pancreatic internal secretions are active.

In the obese the pancreas may have been so overtaxed throughout long periods for the maintenance of a normal level of blood sugar to offset the resynthesization of the blood sugar and its deposit as fat, that it is a characteristic of the obese. Assuming this to be true, in fact the pancreas in the obese may suffer finally such damage from this overwork that it fails in its task of utilizing sugar in the body and sugar accumulated in the blood, which postulates a breakdown of the glycogenic and glycogenolytic function of the pancreas.

On the other hand it is possible that the primary defect may have lain in the abnormal action of the pancreatic hormone in utilization of sugar by the body. If instead of promoting utilization of the dextrose molecule by the body cells for energy production the synthesis of fat for storage was promoted or simply took place by reason of failure to undergo oxidations, there would appear the symptom of obesity associated with diabetes. Rather than a cause of the early diabetic defect, obesity may be only a symptom and a subordinate. The physiological tendency to deposit either ingested fat, or fat synthesized from carbohydrate results in obesity. If a physiological habit deposits fat synthesized from sugar instead of making it available for energy, there would seem to be no logical need for the assumption of a pancreas overtaxed to maintain a normal blood sugar, nor any necessity for relating simple obesity to diabetes.

It is well known that there is a class of persons who gorge themselves habitually, and who may or may not be obese and yet are not diabetic. Of this group, J. H. Barach, writing in the *Journal of the A. M. A.* remarks:

"In the light of preconceived ideas, an inquiry into the dietetic habits of these patients, was not as satisfactory as it might have been. Only 20 per cent gave a definite history of overeating. Certainly there are many gourmands who do not develop diabetes. Also there are large eaters who apparently do not metabolize their food, and do not become obese and therefore do not strain their metabolism.

"And there is a distinct group of obese persons whose metabolism is run on an economical basis. They are small eaters habitually; and they and their families aver that while they are the fattest members of their family, they are likewise the smallest eaters. I have had the experience of keeping such obese patients on a hospital controlled caloric diet, allowing 20 calories per kilo body weight and permitting walks of 2 to 4 miles daily, without loss of body weight, and at the end of a 3 week period to have counted the reduction treatment a failure.

"It is, of course, true that the majority of diabetics, as well as most non-diabetics, overeat. It is not an uncommon experience in non-diabetic patients after restricting the diet to half of their former intake, that weeks or even months may go by without appreciable effect on body weight. Whether it is permissible to draw conclusions from statistical data, that increasing sugar consumption throughout the land is a responsible factor in the increasing numbers of reported diabetics, is not certain. The history in some of our diabetics indicated clearly that obesity came on suddenly and without discoverable cause on the part of the patient; and that it was independent of diet, habit or occupation, suggesting that an unknown change had suddenly taken place in their metabolism."

That the burden for the responsibility has been changed from the shoulders of obesity to the broad back of heredity, finds such propagandists as Joslin, Adams, Wright, White, Howard, Pincus and Cammidge.

Says E. P. Joslin, "For the present, in the etiology of and prevention of diabetes, the emphasis has shifted from obesity to heredity, from

the avoidance of obesity in the multitude to the prevention of obesity in the diabetically predisposed individual. Today we focus on the diabetic family in our endeavor to prevent diabetes. Today we strive to detect it and to prevent it in the families of our patients and we warn them against becoming fat. By concentrating on the diabetic family we make our ammunition many times more effective, because our aim is concentrated."

Now, the statistical studies of Joslin as to his private cases as well as of the reports of others fully confirm the opinion that obesity, if not *the* cause, is with astonishing frequency *a* cause, or in some manner closely connected with the cause. In 75 per cent of a series of 1000 of Joslin's cases there was a definite history of preceding obesity. Between the ages of 31 and 40 only 40 per cent of the cases which developed diabetes were under weight and after 40 years of age but 6 per cent or less.

In another series of cases he found a history of excessive indulgence in food in two-thirds of the number of cases. As a result Joslin was led to state: "all other considerations in the etiology of diabetes drop out of account when the possibility is recognized of preventing the disease by simply maintaining a normal weight."

Observations of other investigators give statistical evidence no less striking. S. F. Adams analyzed the records of the Mayo Clinic and found that 91 per cent of the diabetic patients were overweight and that 82.9 per cent were more than 10 per cent overweight when the diabetes was diagnosed.

"In discussions of obesity and its causal relation to diabetes we should remember that it is not so much the actual fat deposited in the body which predisposes to diabetes as it is the process of overeating by which the deposit of fat is acquired. The pancreas of the obese individual may have been overtaxed for years to maintain a normal blood sugar and ultimately have broken down under the strain. There is abundant evidence that the fat individual has a lowered carbohydrate tolerance even though this has not reached the stage of frank diabetes. Opportunity exists here for functional even if not for organic disease of the pancreas. Should the patient have grown fat with fat foods instead of carbohydrate foods, the efficiency of his pancreas may have

been lowered just as effectively, because it has long been known that a glucose tolerance test, preceded by a fat diet may present a glycemic curve almost typical of diabetes. Finally, we must remember the similarity in effect of endogenous fat and exogenous fat. That person who loses weight rapidly is almost invariably living upon a high fat diet, albeit his own human fat, and hence is exposed to all the dangers which an exogenous fat diet entails," says Adams.

It is interesting to note that Adams, in his survey of cases designed to show only the relationship of obesity to diabetes, recognized that obesity and heredity as joint factors in the same patient had a significance not present in obesity alone. For in describing preventable and unpreventable obesity he classified as unpreventable causes of obesity, age, sex, previous disease, endocrine disturbance and *heredity*.

Why obesity should be a factor in inducing diabetes in a predisposed individual is rather foggy. Obesity might be a manifestation of the same heritable physiological defect that results in the diabetes itself. Both diabetes and obesity may be coordinate phenomena rather than one subordinate and dependent upon the other. It is possible that the constant deposition of carbohydrate as storage fat so reduces the quantity of dextrose available for physiological oxidations that the functional capacity of the pancreas is exceeded in an effort to give more and more dextrose to the blood from the glycogen deposit in the liver.

Animal experiments furnish strong evidence of the heritability of such physiological characteristics as high blood sugar. Cammidge and Howard conducted experiments with mice and demonstrated the transmission of this character.

"These workers found that if certain mice having a high fasting blood sugar (116 to 120 mg. per cent) were mated they produced offspring having the same high blood sugar, but if mice having these high blood sugars were crossed with mice having normal blood sugars (about 85 mg. per cent) all of the progeny possessed normal blood sugars. One could conclude that in these experiments the high blood sugar played the part of the recessive characteristic. When these seemingly normal offspring were crossed with high blood sugar mice the results followed the Mendelian law, namely, there were equal num-



bers of high blood sugar mice and seemingly normal mice or hybrid carriers. If the seemingly normal mice (hybrid carriers) were mated with each other the progeny had high and normal blood sugars in the proportion of 1 to 3. This demonstrated that the heterozygous normal or hybrid carriers, although apparently normal were capable of transmitting the characteristic to their offspring with results following the Mendelian law," says Wright.

"Cambridge and Howard further found that if they mated their hybrid carriers with true normals from another stock all of the offspring had normal blood sugars. If these were again mated with true normals the progeny were apparently normals. This could be repeated through many generations with identical results, but if two related offspring from such crossings were mated, or if one of these mice was mated with another mouse with similar ancestry, some of the progeny would show a high blood sugar in the proportion of 1 to 3. It could then be demonstrated that two of the remaining three mice were hybrid carriers, and that only one was normal and incapable of transmitting the chemical characteristic. This proved how easily a characteristic might be recessive and remain hidden for many generations only to show when the proper mating qualifications were met."

Wright adds further.

Of 523 patients at the Joslin Diabetic Unit from July to October, 1932, control histories were obtained from 153 non-diabetic patients. In the 523 diabetic families there were reported 187 diabetic relatives other than parents and siblings in 110 families or 22.94% of the families with diabetic blood relatives. In the 153 non-diabetic families 16 families or 10.46% reported 21 blood relations with diabetes. Notice that there was reported in the diabetic families a significant excess of families with diabetic blood relations other than parents and siblings.

So Pincus and White in their endeavor to establish the hypothesis that the potentiality for developing diabetes is inherited as a simple Mendelian recessive, classified the families into three groups: 1. both parents non-diabetic, 2. one parent diabetic, 3. both parents diabetic. In the first group were included 440 families, and the second 81 families. The reasons for wishing to establish the above hypothesis rather than the

hypothesis of dominance are: 1. The genealogies available indicated that this disease may skip one or more generations, and the genealogies in the literature generally support this view.

"Numerous investigators have for some time acknowledged the possibility that diabetes mellitus may be inherited. The presentation of family statistics has generally been of two types: 1. the listing of genealogies in diabetic families; 2. the listing of diabetes incidence among relatives of diabetics with little statistical analysis of the significance of these incidences. In none of the papers that have come to the notice of us—(i. e. Pincus and White) have any direct attempts been made to ascertain the possible Mendelian basis of the disease. An ideal genealogy would be that of a family in which every member of the family had lived beyond the 9th decade, so that complete opportunity for expression of the disease were given to every member of the family," is admitted.

"The direct examination of every member of a diabetic family might very well obviate a number of pitfalls and uncertainties. This we propose to do in time and in succeeding papers will publish the statistics they thus obtain. The potentiality for developing diabetes behaves in the listed families as if it were a Mendelian recessive.

"Most investigators have been wary of accepting Mendelian interpretations. Such data are not of the sort that would enable a forthright decision. Any statistical analysis must depend on a knowledge of the ages of the non-diabetic as well as the diabetic members of the families examined, and if possible a knowledge of the family histories of the parents as well as the children. If heredity is accepted as a factor in the etiology of the disease then this heredity must presumably be Mendelian. The known cases of non-Mendelian inheritance are rare and rather special. The specific decision to be made is whether one is dealing with the expression of a dominant or recessive gene or genes. It is obvious that one must choose the simplest explanation, and in the case of diabetes mellitus the existent data as far as they go support the notion of the inheritance of a single recessive gene.

"Therefore if the assumption be accepted that potential diabetics before they develop the disease have the same expectations of life as persons generally, it can be demonstrated that the observed

occurrence of diabetes in the children of the diabetic families is in accord with the hypothesis that potentiality for developing diabetes is inherited as a simple Mendelian recessive.

"The probability that certain parents classed as non-diabetic are genetically diabetics would indicate that there is a deficiency of diabetic children in these diabetic families, but this presumed deficiency might be due to the limitations of the method of collecting family histories. In any event, our data behaves as if identification of diabetics among the parents and children were in accord with Mendelian expectations, provided their calculations of the relative number of potential diabetics present in each decade are correct."

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### INDIANA IS GETTING WROUGHT UP ABOUT THE INVASION OF THE PRACTICE OF MEDICINE

The Journal of the Indiana State Medical Association, June, 1934, under the heading "Professional Anesthetists," says:

A considerable number of our larger hospitals are at present concerned with a recent ruling of the Indiana State Board of Medical Registration and Examination regarding the administration of anesthetics by "hospital anesthetists, most of whom are graduate nurses." While it is true that practically all these nurses are especially trained in the art of anesthesia (and it is an art), the fact remains that the practice directly infringes on the rights of licensed practitioners of medicine.

We have known a good many anesthetists in our time, some of them of the nurse variety, and we are prepared to state that invariably they give a good account of themselves. But, as we have said, it is an open question whether any one other than a medical man should regularly administer anesthetics.

Under the present law there are two legal objections to the nurse system of anesthesia: the first is that most hospitals using this plan are, legally engaged in the practice of medicine, in that they make a charge for this service, the nurse working either under the salary or commission plan; the second legal objection lies in the fact that the nurse so engaged is practicing medicine without a license so to do. In either event, we believe the Board of Medical Registration and

Examination is correct in its present stand in the matter and that the Indiana medical profession will agree with that interpretation of our medical law. However, some of our larger hospitals, wherein nurses are engaged as resident anesthetists, maintain that their chief reason for so doing is that medical men are not available who have had sufficient experience in anesthesia, particularly the gas varieties. We shall have to admit that in many instances there is much of merit in such a contention, but that matter is easily remedied. If a hospital surgical service is sufficiently large to justify a resident anesthetist, it would seem a rather easy matter to persuade some staff member to equip himself for such service.

We dislike to use the terms "state medicine" or "socialized medicine" so frequently, but this is just another instance in which agencies outside our profession are doing a bit of chiseling; it is but another straw—and a rather heavy one—being laid on the back of the dromedary!

For one reason and another we rather suspect that the resident nurse anesthetist plan is not entirely a plan born of extreme necessity, nor is it entirely altruistic; we have a rather definite notion that matters pecuniary have quite a bit to do with it.

On the whole, we are quite in accord with the Board in this matter and shall watch with a great deal of interest the developments following its recent promulgation regarding anesthesia in hospitals.

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### INDIANA BOARD OF MEDICAL REGISTRATION AND EXAMINATION PROTESTS THE EMPLOYMENT OF NURSES TO ADMINISTER ANESTHETICS

We quote the following letter sent to hospitals of the state:

Indiana State Board  
of

Medical Registration and Examination  
Room 5, State House Annex

Indianapolis, Ind., May 11, 1934.

Superintendent,  
Union Hospital,  
Terre Haute, Indiana.

Dear Sir:

Complaints have been made to the Board of



Medical Registration and Examination that hospitals in the state are employing, in increasing numbers, nurses for the purpose of administering anesthetics. These nurses are being employed on full or partial time basis at a nominal salary and maintenance, but the hospital renders to the patient a bill for full fee for her services, thereby retaining the difference and thus incurring a profit.

This practice should be deprecated, since it involves two questions: first, the hospital is violating the Medical practice act, as a corporation cannot have the privilege of practicing medicine under the law; second, the nurse is practicing medicine without a license, as she is assuming duties which are, under the law, those of a licensed physician. There is much more concerned in the administration of anesthetics than the mere dropping of ether or the use of a gas machine, or otherwise.

The attention of hospital superintendents and boards is directed to this violation of the law, and it is hoped that the Board of Medical Registration and Examination will not find it necessary to resort to the courts to stop this violation of the law by the illegal practice of medicine.

I am directed by the Board in executive session March 30, 1934, to convey the above information to all hospitals.

Very truly yours,

(Signed) WM. R. DAVIDSON, M. D.,  
Secretary.

#### ATTEMPTS TO LEVY OCCUPATIONAL TAX ON PRACTITIONERS OF MEDICINE

The *Federation Bulletin*, June, 1934, gives a summary of attempts being made to limit the rights and duties of practitioners, we quote:

##### RIGHTS AND DUTIES OF PRACTITIONERS

*Occupational Taxes.*—The legislatures of Alabama,<sup>234</sup> Maryland,<sup>235</sup> South Carolina<sup>236</sup> and North Carolina<sup>237</sup> considered bills specifically proposing to levy annual occupational taxes on practitioners of the healing art. The North Carolina bill became law and levies an annual occupational tax of \$25 on practicing physicians, dentists, osteopaths, chiropractors, chiropodists and optometrists. If professional income does not exceed \$1,000, the tax is to be \$12.50. The licenses of practitioners failing to pay this tax may be revoked. The South Carolina bill, which

was killed in committee, proposed to levy an annual occupational tax of \$20 on practitioners whose gross annual income is over \$2,000 and \$10 on those practitioners whose gross income is under \$2,000. The Alabama bill proposed that physicians practicing in cities or towns of over 5,000 pay the state an annual license fee of \$25, that those practicing in towns of less than 5,000 and more than 1,000 pay \$10 and those practicing in all other incorporated towns pay \$5. Cities and towns of over 5,000 inhabitants, the bill proposed, were not to be permitted to exact an additional annual municipal license fee in excess of \$12.50 and cities or towns of less than 5,000 and more than 1,000 inhabitants were not to exact an annual municipal license fee in excess of \$5. The Maryland bill proposed to exact an annual fee of \$15. An unsuccessful attempt was made in Georgia,<sup>238</sup> to reduce from \$15 to \$10 the annual occupational tax levied on all practicing physicians and to provide that no municipal corporation or county may levy an additional occupational tax. Attempts were made in Arkansas,<sup>239</sup> Kansas,<sup>240</sup> New Mexico,<sup>240a</sup> and Oregon,<sup>241</sup> to authorize cities and municipalities of designated classes to license and regulate all professions pursued within the limits of the city or town. This legislation was enacted in Kansas and New Mexico but killed elsewhere. Various revenue measures were considered in some states which while not specifically mentioning physicians would have exacted annual taxes in the nature of occupational taxes from practicing physicians. Four Illinois bills considered proposals which would have imposed annual license taxes on the gross income of physicians. Two of these bills<sup>242</sup> proposed to levy an annual license tax amounting to 1.5 per cent of gross income. Another bill<sup>243</sup> proposed an annual tax amounting to 1.5 per cent of the gross receipts from practice over \$1,200. The fourth bill<sup>244</sup> proposed to levy a tax equal to 1 per cent of the gross receipts derived from practice. A Michigan bill<sup>245</sup> proposed to levy an annual occupational tax of 3 per cent on that part of gross professional income in excess of \$4,800. Two Washington bills<sup>246</sup> proposed to levy an annual tax of three-tenths of 1 per cent on that part of gross professional income in excess of \$1,200. None of these bills, at least in so far as affecting physicians, was enacted with the exception of



the Michigan bill, the status of which is not known.

#### REPORTS OF DISEASES OR DEFECTS

A law was enacted in Connecticut<sup>247</sup> which requires a physician or a midwife in filing a birth certificate to state the nature of any apparent physical defects in the child. A law was also enacted in Wisconsin<sup>248</sup> which requires physicians to report to the state board of health the names of patients having cancer or other malignant growths. A new Iowa law<sup>249</sup> requires a physician, in addition to reporting to the local board of health that a person is infected with a quarantinable disease, report that fact immediately to the postoffice where the quarantined patient receives or dispatches mail. A new Montana law<sup>249a</sup> makes it the duty of all physicians and other practitioners of the healing art who examine or treat a person with any disease declared reportable by the state board of health to report the fact to the county or local health officer having jurisdiction of the territory in which the case is found.

234. Ala. S. 11XX.

235. Md. S. 54.

236. S. C. H. 534.

237. Laws of N. C., 1933, Ch. 445, introduced as H. 120.

238. Ga. S. 226.

239. Ark. S. 322.

240. Laws of Kan., 1933, Ch. 134, introduced as S. 340.

240a. Laws of New Mexico, 1933, Ch. 179, introduced as H. 127.

241. Ore. H. 257.

242. Ill. S. 530, H. 725.

243. Ill. S. 296.

244. Ill. S. 238.

245. Mich. H. 184.

246. Wash. S. 16, H. 92.

247. Laws of Conn., 1933, Ch. 318, introduced as H. 575.

248. Laws of Wis., 1933, Ch. 111, introduced as A. 459.

249. Laws of Iowa, 1933, Ch. 43, introduced as H. 129.

249a. Laws of Montana, 1933, Ch. 26, introduced as S. 76.

### TEN CARDINAL PRINCIPLES FOR MEDICAL MEN

At the June meeting of the American Medical Association at Cleveland the House of Delegates went on record in favor of the following set of principles to guide the medical profession in its efforts to meet the problems of medical service under the present menacing conditions:

*First:* All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

*Second:* No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the

character of medical service must be borne by the profession.

*Third:* Patients must have absolute freedom to choose a legally qualified Doctor of Medicine who will serve them from among all those qualified to practice and who are willing to give service.

*Fourth:* The method of giving the service must retain a permanent, confidential relation between the patient and a "family physician." This relation must be the fundamental and dominating feature of any system.

*Fifth:* All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.

*Sixth:* However the cost of medical service may be distributed, the immediate cost should be borne by the patient, if able to pay, at the time the service is rendered.

*Seventh:* Medical service must have no connection with any cash benefits.

*Eighth:* Any form of medical service should include within its scope all qualified physicians of the locality covered by its operation who wish to give service under the conditions established.

*Ninth:* Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.

*Tenth:* There should be no restrictions by non-medical groups on treatment or prescribing unless formulated and enforced by the organized medical profession.

### HIGH SPEED

Dr. Glenn Frank, president of the University of Wisconsin (as if you didn't know!) tells the story of the racing enthusiast who sat beside one of the editors of the *New Republic* at the last Derby. As a favorite finished, the racing enthusiast slapped his companion on the back and exclaimed:

"The fastest horse the world has ever seen!"

"The fastest world the horse has ever seen," responded the editor reflectively.—*Chicago Tribune*.

## MEDICAL ECONOMICS

During the annual meeting at Springfield, this committee was greatly encouraged by the interest displayed by the members present in the subject of Medical Economics, as well as the kind words received from the members. There had been some question in the minds of the committee as to whether this column was being read by the membership at large and if so how they were enjoying the articles. From their conversation it is evident that the column is being read and that thoughtful consideration is being given to the subject.

This interest will serve as a much needed stimulus to the committee to continue their work on Medical Economics. The Committee has been enlarged by the addition of Dr. Day of Chicago and Dr. Weld of Rockford. Both of these men have had experience in medical organization work and are ready to assist in any way possible. We hope to have an organization meeting of this committee in the near future and discuss the principal line of work for the coming year. One of the uncompleted questions considered last year is that of Group Hospitalization. This is a large subject, and is of interest to the Chicago Medical Society and the Chicago Hospital Association as well as the State Medical Society. It is tentatively planned to get committees from these three organizations present at a meeting and discuss the plan from all angles.

We understand that the annual report of the Committee presented at the annual Meeting at Springfield will be printed in the July issue of the Illinois Medical Journal. We trust that every member of the Illinois State Medical Society will take the time to read this report completely, for in it is data which has taken many months to assemble. In addition, it is the first real attempt to get accurate data as to the income and expenses of the doctors of Illinois during the last five years. Surely all of us should know the trend of income and expense during this time, so that we can try to chart our course for the next few years.

We understand that the subject of Medical Economics was given considerable attention at the meeting of the A. M. A. in Cleveland. Your committee is waiting to read the reports in detail. With our Editor, Dr. Whalen, present at the meeting, we feel sure that no detail thereof escaped his attention for he has been one of the

leaders in the education along economic lines for the past many years.

The committee trust that the individual members will feel free to write to any of the committee at any time giving your views on economic subjects. If there are any questions, that the committee can help you in getting answered, a letter addressed to the chairman at Kankakee, Illinois, will be referred to the proper individual, for an authentic reply.

E. S. HAMILTON, *Chairman,*  
Committee on Medical Economics.

## THE FREQUENCY OF MULTIPLE BIRTHS

Medical men throughout the world are much concerned with the historical data regarding multiple births in the human family.

Dr. R. L. DeBuys, Touro infirmary pediatricist of New Orleans, La., who went digging back into medical history after the birth of the Dionne "quints" came out with the amazing statement that in the light of history the birth that centered the attention of the world on Callander, Ont., an outpost of civilization in the northern woods was just ordinary.

But he had the facts and figures to back up that statement.

He found that while quintuplets were born only once in 41,600,000 cases, quadruplets were born once in 747,000 instances, triplets once in 7,103 cases, and twins once in every 87 cases.

Dr. DeBuys was the first to ascertain that the birth of the Dionne babies was the 31st authentically known set of quintuplets born. Then he went on to recite the case histories of sextuplets births, and other wholesale baby cargoes which were topped by the report of Martin Cromerus, Polish historian, that the Countess Margaret, wife of the Count Virbislaus, brought a total of 36 living children into the world in 1296.

Dr. W. W. Gruelich of the University of Colorado after an investigation of 100,000,000 in his study of multiple births was convinced that one in 87 is a chance for twin births; the square of 87 or 7,569 give the chances in favor of triplets; its cube, or 658,503 the chances in favor of quadruplets and that if this rule continues to hold good in the higher registers, quintuplets should make their appearance once in every 57,289,761 births.



# ILLINOIS STATE MEDICAL SOCIETY PROCEEDINGS OF THE HOUSE OF DELEGATES

*Springfield, May 15-17, 1934*

The first meeting of the House of Delegates of the Illinois State Medical Society was called to order at 3:37 P. M., Tuesday, May 15, 1934, by the President, Dr. Philip H. Kreuscher.

The President: We will stand in silence for one minute in memory of our deceased President-elect, Col. Charles D. Center.

The President: The first order of business is the report of the Credentials Committee.

Dr. E. P. Coleman: The Credentials Committee has seated 65 delegates from down state, 39 from the Chicago Medical Society and 13 members of the Council, a total of 117.

The President: The Chair will entertain a motion that these be made the official delegates of this meeting of the House of Delegates.

Dr. Andy Hall, Mt. Vernon: I move that these delegates be made the official delegates of the House of Delegates. Motion seconded by Dr. J. S. Templeton and carried.

The President: The next order of business will be the roll call by the Secretary.

(The Secretary called the roll and announced that there were present 65 delegates from down state, 38 from the Chicago Medical Society and 13 members of the Council, a total of 116.)

Secretary: Mr. President, we have a total of 116 delegates. A quorum is present.

The President: The House is duly organized for the transaction of business. We will have the reading of the minutes of the last meeting.

Dr. Mather Pfeifferberger, Alton: I move that the minutes as published in the July, 1933, issue of the ILLINOIS MEDICAL JOURNAL be adopted as the official minutes. (Motion seconded by Dr. E. C. Kelly of Peoria, and carried.)

Dr. Walter Stevenson, Quincy: Inasmuch as this Society has lost its President-elect, Dr. Charles D. Center, by tragic death, I move that this body proceed to fill the vacancy. (Motion seconded by Dr. E. C. Kelly, Peoria.)

Dr. J. S. Templeton, Pinckneyville: I move as a substitute motion that in honor of our most respected, the late Dr. Center, and as a tribute to his memory that the office of President-elect

be left vacant during this session and that the election of a President-elect be made a special order of business for Thursday morning. (Motion seconded by Dr. W. C. Blaine, Tuscola.)

Dr. E. P. Sloan, Bloomington: I wish to second the substitute motion, especially that part of it which refers to the honor of our departed brother, Dr. Center. I see no reason why this session of the House of Delegates could not be carried on for two days with that much honor and keep him in our minds for two days.

Dr. Walter E. Kittler, Rochelle: Having just stood up in honor of Dr. Center I believe that the least we could do would be to select his successor who would have thirty hours to prepare himself for installation into office and would relieve us of the possibility of wire pulling and other political methods.

Dr. Andy Hall, Mt. Vernon: This is an unusual situation. Heretofore, we have always elected the President-elect who has gotten a year of schooling before assuming the office of President of the Illinois State Medical Society. A situation has arisen that demands that the man we elect, Thursday, at once assume this position. It is a position that has usually gone to men who have done something for the State Society, to men who are well known. Why should we insist on electing one today? When you sent out these notices no thought was given to the delegate that the election would be held today, no indication that a caucus would be held today. Why not wait until Thursday so we may have a chance to confer with one another and look over the available material. The man who is elected Thursday will outline no program, make no inaugural address. I think in due justice to the State Society and to the man who comes up to be elected that we should be given a few hours to discuss the available material.

Dr. T. D. Doan, Palmyra: For the last twenty years or more by actual observation we have had a sort of agreement, and I mean nothing personal to the Chicago Medical Delegates, but we have had an understanding that the Chicago Delegates were to elect a president each alternate year and the down state delegates were to name one the opposite year. It would be almost impossible with the mixed crowd that we have here to elect a man who would give the down state a fair show unless the Chicago Medical delegates

refused to vote. We feel that the man whom we elect should be experienced.

Dr. J. S. Nagel, Chicago: I think that the Chicago Medical Society has a right to vote on the motion. The motion is not on who is to be president, the motion is whether we vote today or Thursday and as such the Chicago Medical Delegates have a perfect right to vote.

The President: I will call for the vote upon the substitute motion. (The substitute motion carried.)

Dr. Lee Frech, Decatur: I rise to a point of order, the substitute motion replaces the original motion.

The President: State your information.

Dr. Frech: Robert's Rules of Order.

The President: Robert's Rules of Order states: "That in the case of a substitute motion the Chair first puts the question on the substitute motion and then on the original motion as substituted." I now call for the question on the original motion as substituted. (Motion carried.)

The Chair: The next order of business is the report of the Officers. What is your wish concerning the report of the Officers? These reports have been printed and each of you have a copy, do you wish each officer to read his report?

Dr. R. J. Coultas, Mattoon: I move that the reading of the President's report be dispensed with. (Motion seconded and carried.)

#### REPORT OF THE PRESIDENT

To the Members of the House of Delegates:

My year as President of the Illinois State Medical Society has come to an end. It has been a year of many pleasant occasions and few disappointments. It has been a difficult one, first because as President I saw before the enviable records of such men as Neal, Ferguson, Chapman and the others who have gone before, and second because the prolonged national and world-wide depression alluded to by my predecessors has become even more depressing and at times almost unbearable. It has been a year of struggle for existence for many of the medical men.

Federal Regulation Number 5, then Number 7, and finally Number 8 were brought into existence. By these the medical society was called upon to render assistance and make still greater sacrifices. The State Committee gave much time and energy in an effort to bring about an ultimate solution of these problems. For the self-sacrificing and tireless effort of these men we are truly grateful. In the consideration of these new and unusual projects there came forth two bright spots. First, for the first time in the history of the nation the Federal Government gave evidence of recog-

nition of the importance of the role played by the medical profession, and second, there lies hidden in one of the arid paragraphs of Regulation Number 7 the frank request that the traditional "physician-to-family" relationship remain inviolable.

There are those who believe that the acceptance of these regulations was the first step toward state medicine. On the contrary, it is my belief and conviction that by its cooperation the medical profession has again proved that being a part of the social order of the community, it invariably adapts itself to the needs and arrangements of the time. We will not have state medicine.

The State Council has carried on its deliberations in a dignified and effective manner. Its committees have functioned admirably and with understanding. Our economic problems were given due consideration, and although no definite conclusions or recommendations are as yet forthcoming, we are "on our way."

The Secretary has shown his usual aptitude for hard work and has this year put forth an almost incredible amount of effort in his service to the state society. The Illinois Medical Journal by the efforts of the editor has held its place as the foremost state medical journal of the nation. In the editorials Dr. Whalen has further shown his keen understanding of the ethical and economic problems of the medical profession.

The Legislative Committee and the Educational Committee have come through the year with a most enviable record of accomplishments. A truly great service appreciated by every one has been rendered.

A number of regular clinics for handicapped and crippled children have been carried on under the sponsorship of the county medical societies. A new organization was created in Whiteside County and several other clinics were re-established and placed under the leadership of the medical society. Warren County has now completed its seventh year. It has been the aim in these organizations to make thorough examinations of the patients, outline proper treatment methods and establish a definite follow-up system. We believe that a real service is thus rendered to the underprivileged in a community without pauperization of the patients.

The Woman's Auxiliary, under the able leadership of its president, has made definite advancements. Several new county organizations were effected. With a thorough study and a better understanding of its duties, the Auxiliary has been able to bring about a greater realization of its purpose. This organization is most worthy of our continued encouragement and cooperation.

The untimely death of the President-Elect, Dr. Charles D. Center, has suddenly created a vacancy which it will be difficult to fill. Few men possess a greater degree of sincerity and understanding than did he whose death we now mourn.

It has been my privilege to visit the medical societies in nearly every part of the state. I regret only that it was impossible for me to meet with all the county societies, a hope I had so greatly cherished.

Having discussed the past, let us now look forward



to a new year. There is much work to be done. I make a plea for greater cooperation within our own ranks, for a greater realization of privilege and duty and for a greater spirit of tolerance and devotion. Let us go forward with courage.

Respectfully submitted,

Philip H. Kreuscher, M. D.,

*President, Illinois State Medical Society.*

The President: The next is the report of the Secretary. What is your pleasure?

Dr. E. P. Sloan, Bloomington: I move that the Officers and the Chairmen of Committees be permitted to give short explanations of their reports. (Motion seconded by Dr. S. E. Munson, Springfield, and carried.)

#### REPORT OF THE SECRETARY

To the Members of the House of Delegates:

Your Secretary begs to submit once more his Annual Report. The past year has been another of unusual hardship to the members of this Society. From a comparison of our economic problems with those of other professions, and with business in general, we find that all business and professions are affected similarly. Statistics show at this time probably fewer suicides among physicians and a smaller number of them taking bankruptcy than is seen in other businesses, or professions.

We have all contributed our share during the period of economic stress in the free work to indigents, and again remain the only profession or business giving real Charity service, for all other types of so called Charity, are paid for by someone.

#### INDIGENT MEDICAL CARE

Many Societies throughout the country have complied with Federal Rules and Regulations number Seven, governing the giving of medical care to recipients of unemployed relief, through the submission of a program which has been approved by the State Relief Commissions. When these Rules and Regulations were brought out last September, our Council held a special meeting, and selected a committee known as the Advisory Committee to the Illinois Emergency Relief Commission. This Committee after consulting all county medical societies on the subject, submitted a definite plan whereby it was agreed that our physicians would give the necessary care prescribed in this Federal Order, at a rate commensurate with the amount of Relief funds available.

The Committee held many conferences with the State Relief Commission, and after three months of constant and arduous work, we were rewarded with the approval of this plan. Many physicians throughout the state, and a few county medical societies were dissatisfied with the rates for service under this plan, but our Committee is unanimous in the belief that everything was obtained that could be obtained along this line, and it was either a case of a program with these rates, or no program at all. Owing to the fact that the Illinois Emergency Relief Commission has so many duties to perform, and the work of organizing each county in-

dividually, takes much time, progress has been slow, but at this time approximately 40 counties in Illinois are operating under this plan, for the care of indigents. A more detailed report is being submitted to the House of Delegates by the chairman of this special committee.

#### CONTRACT PRACTICE

There has been gradually growing among medical societies throughout the country, more dissension over the accepting of contracts for giving medical care to employees of industrial organizations, by individual physicians, or groups of physicians. During the past year, many of these contracts have been changed, so that for a fixed monthly sum, not only the employees injured or ill, as a result of their work are cared for, but members of their families are also included. Several county societies have changed their by-laws so that contracts of this nature accepted by their members, must be submitted to a special committee for approval, before they are accepted.

Several component societies have likewise ruled that the acceptance of a contract for the medical care of the indigents given by supervisors, must be approved by the Society before it is accepted by a member, or group. Surveys made in all parts of our state, show many contracts given by supervisors for the care of the indigent, where the physician is receiving no more than 16 cents for each office visit, from 22 to 26 cents for residence calls, and other services in similar proportion. This deplorable situation is almost entirely the fault of the physician accepting the contract, for the physician is the only one giving any type of service to indigents, for less than the customary charge.

This condition has been investigated by several of our State Medical Societies, as for example in Wisconsin, the State Society in 1930 by a resolution approved by the House of Delegates, the accepting of individual contracts for the medical care of the indigents was deplored. The Committee on Medical Economics of our Society has been interested in this subject, and it is the opinion of this committee today that when physicians stick together, and refuse to accept such unreasonable contracts for giving indigent medical care, those officials responsible for their care will be willing to pay a reasonable rate for the service.

#### COMMITTEE ON MEDICAL ECONOMICS

This committee has done much constructive work during the past year, and hopes during the coming year, to enlarge their field of usefulness to the Society. At a cost of merely postage much authoritative data has been accumulated, which is shown in their annual report. We recommend that each member of this House not only read this interesting report, but discuss it before their county medical societies. The committee has a number of interesting recommendations for your consideration and plans to enlarge their field of activities in the near future.

#### PUBLIC POLICY COMMITTEE

Although one of our Constitutional Committees, during the past ten years it has had but little work to do.

The Committee this year makes a constructive recommendation which this House should consider seriously, and take a definite action concerning it. Most physicians in this Society are caring for employees of various concerns, who are insured in some Casualty Company. During the past few years, it has been the practice of many of these companies to object to the itemized statement submitted for the giving of this care. The fact that the physician is compelled to keep adequate records and submit several reports on each case, is not given proper consideration. If the physicians will make their charge for such service according to the fee bill of their respective societies, there is no reason why all bills should not be allowed in full.

Many State Medical Societies have a Public Relations Committee which takes up grievances against alleged mistreatment along these lines, and the results have been most gratifying. The Public Policy Committee recommends in its report, that this duty be assigned to them, and we trust that their request will be given a thorough consideration by the House of Delegates.

#### THE MEMBERSHIP

During the past year, there have been a considerable number of members drop out of the Society, as they state, "on account of the depression." At the request of the Finance Committee, we recently sent a questionnaire to many of our State Societies to elicit information relative to their membership, amount of dues, activities, and several other pertinent things along this line. Invariably the Societies having the largest annual dues, retained their membership better than those with lower dues. One Society reported that with annual dues of \$15.00, they have not decreased their membership at all during the past year. New York, with a membership of more than 13,000 and annual dues of \$10.00, states that their membership is being maintained, and is greater than it was in 1929. When we checked over the activities of other societies, many of which have annual dues greater than those in our Society, we failed to find one of them with more essential activities than we have.

#### THE OVERHEAD

The Council has made an intensive study of the overhead in the Society, and has been able to make a marked reduction in the operating expenses during the past year. Once more the JOURNAL printing contract was changed, with a reduction of approximately \$150.00 per month, and when we reported a saving last year of approximately \$4,000.00 per annum, it can readily be seen that the JOURNAL costs have been materially reduced. There have been similar reductions in the cost of operating the Medico-Legal Committee, the Educational Committee, and from other sources. Your Secretary, although his duties have been far greater the past year than ever before, and his correspondence has increased more than 300 per cent during the past two years, has only one assistant in his office and has been able to turn out the necessary work. The many Federal and State Relief Organizations rules and regulations, the approval of the program submitted by the

Special Advisory Committee, duties pertaining to the activities of the Medical Economics Committee, in addition to the routine correspondence, accounted for this increased amount of work.

#### THE COMPONENT COUNTY SOCIETY SECRETARIES

We have again enjoyed a most cordial relationship with the county society secretaries, and we want to take this opportunity to thank them for the wonderful work they have done. The banking situation of the past two years has necessitated their sending remittances for membership dues in small parcels, as they have been collected, which has increased both their work and ours, but we believe this is the advisable method. Several Societies have had some internal troubles this past year, which has caused no little amount of work, and worry on the part of their secretaries, but we still believe that every county medical society is able to take care of its own problems, as they always should do, then if grievances result, the Council and this House of Delegates is ready to consider their troubles. We believe that the county societies should use the biographical department of the American Medical Association in getting information concerning applicants who have recently come into the county, as they will be able occasionally, to save themselves much embarrassment when this is done. Every Society should select its members carefully for it is much easier to keep a questionable prospective member out of the society than it is to get one out, after he has been accepted, and found undesirable later.

#### THE ANNUAL MEETING

Several new ventures especially in the line of scientific exhibits and demonstrations have been arranged for this meeting. We are especially pleased with the arrangements for the fracture demonstrations which will be given throughout the meeting. Under supervision of our President, Dr. Kreuscher, the common types of fractures have been listed and a member of this society has been selected to demonstrate the latest approved methods of treatment for each of them. Many scientific and commercial exhibits have been carefully arranged for the consideration of all members and guests.

Owing to the fact that larger accommodations are required for our modern meetings, with these additional demonstrations and interesting scientific exhibits, it is becoming more difficult to secure suitable accommodations in many cities which would like to act as host society. We believe this matter should be given every consideration in selecting the meeting place for subsequent meetings, and the present system of this House of Delegates giving a preferential vote, then leaving the matter for investigation and final decision to the Council, is the advisable one. Your Secretary by special invitation, has already inspected the facilities available in several cities contemplating the extending of such an invitation, and is ready to report on same, when requested to do so. With so few cities now able to take care of our meetings, it is our opinion that these annual meetings should be arranged in such a way that it will not be necessary for the members of the



host society levying an assessment on the members to have a successful meeting.

### DEATH OF THE PRESIDENT-ELECT

Dr. Charles D. Center, who was unanimously elected last year to the office of President-Elect, and who had been making elaborate plans during the present year to enter the office of President, was killed by an automobile on March 31st, a most tragic ending to a long career of service for the best interests of this organization. His services for the Society began more than thirty years ago, and he has invariably done the tasks assigned to him, never complaining at the assignment. His passing was most tragic, and is a great loss to this Society which he had served so loyally. Loyalty, sincerity, and service were uppermost in his thoughts for the best interests and future of the Illinois State Medical Society. We who remain, must continue the work which he had mapped out for the future.

Your Secretary at his solicitation, spent several hours with Colonel Center only two days before his fatal accident, and talked over many things which he had in mind for the best interests of the Society for the coming year, and it was quite evident that he had been giving the subject much thought during the past year. Owing to the fact that no provision is made in the Constitution and By-Laws for selecting the successor to the President-Elect in the event of his death, let us hope that this House of Delegates will choose wisely, and that his successor in his work to come, will not forget the responsibilities that are his because he has not had the advantage of one year training as President-Elect.

### SUMMARY

The Illinois State Medical Society has again done well during the past fiscal year, although there has been a drop in membership. During the past few weeks following the sending of informative letters to all component society secretaries, many have been reinstated, and from present returns, it seems quite likely that during the present year, we will regain most of the lost members. There are many counties with physicians who are not members, who should belong to the society. It is quite obvious, that now, of all times, physicians should work together for a common purpose, and to aid the cause of Medicine in the most trying times of modern history.

Our experience is similar to that of all other organizations, whether professional or lay types. In fact it is our opinion that in spite of the many adversities encountered in our work, we have withstood the storm better than most others. Few physicians have given up and most of them are unanimous in the belief that we must carry on the work that our predecessors left for us to do.

Membership drives through well organized committees in each component society, together with an educational campaign should bring us the largest membership of all times. From our investigations and relationships with other state societies, we do not believe that the membership loss is primarily a matter of dues, espe-

cially when one considers the many benefits afforded in our Society, several of which would cost the individual many times more than he pays in annual dues.

Our Bond holdings are gradually coming back, and the report of the auditor herewith given will show a better condition with our holdings than can be shown in most banking institutions today. It has been the general opinion of all medical societies that it is inadvisable to curtail activities, but to the contrary, increase them at this time. With the many Lay organizations, and organized activities working insidiously against our profession and attempting to dictate the type of practice for the future, we must be constantly alert and prepared to counteract these misguided efforts.

Your Secretary again wants to thank the many component society officers for the splendid cooperation given him in his work and although the clerical work the past year has been far more extensive than ever before, the cooperation has been ideal, and has made our work much easier as a whole.

### FINANCIAL REPORT OF THE SECRETARY

The following represents the receipts from all sources during the past fiscal year, the amount opposite the various county societies represents the receipts from county societies for membership dues from May 1, 1933, to April 30, 1934. Many remittances were received one or two days late to be included in this report, but each of these has been properly credited, and receipts issued.

### RECEIPTS FROM COUNTY MEDICAL SOCIETIES

May 1, 1933 to April 30, 1934

Adams .....	\$ 343.00	Logan .....	\$ 217.00
Alexander .....	72.00	McDonough .....	105.00
Bond .....	70.00	McHenry .....	133.00
Boone .....	91.00	McLean .....	532.00
Brown .....	28.00	Macon .....	749.00
Bureau .....	294.00	Macoupin .....	133.00
Carroll .....		Madison .....	233.10
Cass .....	111.00	Marion .....	259.00
Champaign .....	594.00	Massac .....	63.00
Chicago, Med. Soc. ..	22,636.00	Mason .....	77.00
Christian .....	336.00	Menard .....	21.00
Crawford .....	56.00	Mercer .....	35.00
Clark .....	91.00	Monroe .....	35.00
Clay .....	84.00	Montgomery .....	119.00
Clinton .....	182.00	Moultrie .....	77.00
Coles-Cumberland ..	280.00	Morgan .....	422.00
DeKalb .....	260.75	Ogle .....	98.00
DeWitt .....	119.00	Peoria .....	1,022.00
Douglas .....	184.00	Perry .....	105.00
DuPage .....	315.00	Piatt .....	168.00
Edgar .....	154.00	Pike .....	159.25
Edwards .....		Pulaski .....	70.00
Effingham .....		Randolph .....	217.00
Fayette .....	14.00	Richland .....	
Ford .....	119.00	Rock Island .....	616.00
Franklin .....	182.00	St. Clair .....	763.00
Fulton .....	378.00	Sangamon .....	791.00
Gallatin .....	35.00	Saline .....	126.00
Greene .....	70.00	Scott .....	
Hancock .....	77.00	Shelby .....	63.00
Hardin .....	35.00	Schuyler .....	70.00
Henry .....	245.00	Stark .....	
Henderson .....		Stephenson .....	217.00
Iroquois .....	147.00	Tazewell .....	176.00
Jackson .....	63.00	Union .....	49.00

Jasper .....		Vermilion .....	612.50
Jefferson-Hamilton..	159.00	Wabash .....	63.00
Jersey .....	70.00	Warren .....	140.00
Jo Daviess .....	70.00	Wayne .....	
Johnson .....		Washington .....	84.00
Kane .....	1,050.00	White .....	77.00
Kankakee .....	266.00	Whiteside .....	210.00
Knox .....	346.50	Will-Grundy .....	854.00
Lake .....	210.00	Winnebago .....	917.00
LaSalle .....	726.00	Woodford .....	175.00
Lawrence .....	91.00	Williamson .....	294.00
Lee .....			
Livingston .....	336.00		
		Total .....	\$42,337.10
Subscriptions .....	96.60	Interest, Bonds ..	3,201.25
Exhibits .....	1,044.57	Journal .....	13,000.00
Interest, Treas. Acct.	71.90	Miscellaneous ....	11.15

Total Receipts ..\$59,762.57

## RECEIPTS AND PAYMENTS RECEIPTS

May 1, 1933 to April 30, 1934

County Societies .....	\$ 42,337.10
Exhibits .....	1,044.57
Subscriptions .....	96.60
Interest—	
Treasurer's Account .....	71.90
Bonds .....	3,201.25
Journal, Advertising .....	13,000.00
Miscellaneous .....	11.15

Total Receipts ..\$ 59,762.57

## DISTRIBUTION OF RECEIPTS

General Fund .....	\$ 21,506.40
Medico-Legal Fund .....	10,341.82
Legislative Fund .....	6,894.61
Journal Fund .....	21,019.74

Total Distribution ..\$ 59,762.57

Cash Balance, May 1, 1933..... 35,839.52

Total ..\$ 95,602.09

## PAYMENTS

General Fund .....	\$ 25,292.31
Medico-Legal Fund .....	6,708.26
Legislative Fund .....	6,261.55
Journal Fund .....	19,599.94

Total Payments ..\$ 57,862.06

Cash Balance, April 30, 1934..... 37,740.03

Total ..\$ 95,602.09

## CASH BALANCES, APRIL 30, 1934

General Fund .....	\$ 993.03
Medico-Legal Fund .....	15,211.54
Legislative Fund .....	14,890.52
Journal Fund .....	6,644.94

Total Cash Balance ..\$ 37,740.03

## MEMBERSHIP SUMMARY

Members Reported in Good Standing, May 1, 1933.... 7,313  
Dropped During the Year—

By Death .....	118
By Removal .....	38
Non-Payment of Dues .....	612
By Expulsion .....	7

Total .. 775

Number Reinstated During Year..... 32

New Members Reported ..430

Total .. 462

Members Carried on April 30, 1934.....7,000

Respectfully submitted,

Harold M. Camp, M. D.,

Secretary.

FRED N. SETTERDAHL

PUBLIC ACCOUNTANT

224 Robinson Building

Rock Island, Illinois

May 4, 1934

Members of the House of Delegates,  
Illinois State Medical Society.

This is to certify that I have audited the following accounts of your Society, for the year ended April 30, 1934.

Dr. H. M. Camp, Secretary.

Dr. C. J. Whalen, Editor.

Miss Jean McArthur, Secretary Educational Committee.

The Bank accounts which represent the accounts of Dr. A. J. Markley, Treasurer, have been verified and found to reconcile with Secretary's accounts.

Interest has been received regularly from your investment funds with no default of interest, and the average market value of the bonds is 94.6% of the par value. The total par value of the bonds held is \$74,000.00 and the market value is \$70,032.50.

All funds are deposited in the name of the Society and the bonds are held in trust by the Depository Bank.

The records have been well kept and in my opinion my detailed report furnished to the Council represents the true transactions for the year.

Respectfully,

Fred N. Setterdahl,

Public Accountant.

The Secretary: I want to call attention to two or three things in this rather voluminous report which we hope you will look over. One is relative to the indigent medical care. This will come up in the report of the Chairman of the Advisory Committee to the Illinois Emergency Relief Commission.

The second is relative to the report of the Public Policy Committee. This Committee has had nothing to do for many years, though it is a constitutional committee. This Committee would like to have something to do. They are making a very definite recommendation which they hope this House will act upon this afternoon. I think the Chairman should be given opportunity to tell the plan of the Committee.

The third relates to the annual meeting. We have an unusual line of scientific exhibits. For years the members who presented scientific exhibits have asked that special awards be made for the best exhibits. That is the thing that should be given consideration.

One more thing I wish to call to the attention of the House of Delegates is the statement of the auditor, Mr. Setterdahl, which is attached to my report, and which shows that the audit for



the past fiscal year has been made, and is reported in detail to the Council.

Dr. C. E. Wilkinson, Danville: I move that the report of the Secretary be accepted. (Motion seconded by Dr. T. B. Williamson, Mt. Vernon, and carried.)

The President: The next is the report of the Treasurer.

REPORT OF THE TREASURER

For Year Ended April 30, 1934

To the Members of the House of Delegates:

Your Treasurer wishes to make the following report:

RECEIPTS

From the Secretary .....	\$ 43,489.42
From the Editor .....	13,000.00
Interest on Deposits.....	71.90
Interest on Bonds.....	3,201.25
<hr/>	
Total Receipts .....	\$ 59,762.57
Balance, May 1, 1933.....	35,839.52
Total .....	\$ 95,602.09

PAYMENTS

General Fund .....	\$ 25,292.51
Medico-Legal Fund .....	6,708.26
Legislative Fund .....	6,261.55
Journal Fund .....	19,599.94
<hr/>	
Total Payments .....	\$ 57,862.06
Balance, April 30, 1934.....	37,740.03
<hr/>	
Total .....	\$ 95,602.09
All Funds are deposited in the name of the Illinois State Medical Society. Deposited with the State Bank and Trust Company, of Evanston, Illinois.....	
<hr/>	
Deposited with the National Bank of Monmouth, of Monmouth, Illinois .....	
<hr/>	
Checks on Hand, returned from Closed Banks, and Included in Receipts .....	
<hr/>	
Total .....	
<hr/>	
Less Checks Outstanding.....	
<hr/>	
Net Balance, as above.....	
<hr/>	
There is held in Trust, at the State Bank and Trust Company, of Evanston, Illinois, Bonds, par value .....	
<hr/>	
Total Cash and Bonds.....	
<hr/>	
\$111,740.03	

Respectfully submitted,  
R. J. MARKLEY, M. D.,  
Treasurer.

Dr. E. P. Sloan, Bloomington: I move that the report be accepted. (Motion seconded by Dr. E. H. Oelke, Wheaton, and carried.)

The President: The next is the report of the Chairman of the Council.

REPORT OF CHAIRMAN OF THE COUNCIL

To the Members of the House of Delegates:

Unprecedented political, social and economic changes in the last year brought new problems to the Council for study and solution. Chief among these was the care of the indigent. The medical profession as a whole during this serious economic depression, being highly altruistic, gave freely of their time and also of their money to the alleviation of human suffering and

illness, not only in the care of the indigent sick but also in the prevention of disease. In the great majority of cases, the doctors received no compensation. In the other instances, where small compensation was paid out, it was to some large degree, controlled by political influences and factors that were neither advantageous to the profession or to the recipients of medical care. Federal Bulletin No. 7, at least to some degree, changed the situation. Immediately after the issuance of Bulletin No. 7 a special meeting of the Council was called and a committee appointed, consisting of:

John R. Neal, Chairman.....	Springfield
Harold M. Camp .....	Monmouth
Philip H. Kreuscher .....	Chicago
S. E. Munson.....	Springfield
E. C. Cook.....	Mendota
Chas. H. Phifer.....	Chicago
Julius H. Hess.....	Chicago
R. K. Packard (ex-officio).....	Chicago

This committee gave much of their time and honest and intelligent effort to clear up the situation to the best interest of the physician and the public. Further reports of the work of this committee was published in the April edition of the ILLINOIS MEDICAL JOURNAL. This does not settle the problem of the care of the indigent. This being only an emergency act. The care of the indigent in Illinois and in most of the states constitutes a permanent problem and needs further study and revision in order that even in normal times this work may be handled more adequately by the physicians and better service rendered to the public. It is hoped that the present committee will continue their study with the end in view for further improvement in this field.

Another problem presenting itself for study is that of contract practice in its various fields. That there are evils is not to be denied. The cause, or causes, of the development of this type of practice and the evils that have crept into it call for careful and comprehensive study in an effort to correct some of the existing evils, which in the end will be beneficial to both the profession and those engaged in distributing such care and also to the recipients of such care. The Committee on Medical Economics is at the present time making such a study with the view in mind to present a detailed report of their work. It is also to be hoped that this committee will continue in this study.

Another problem is that of group hospitalization. Opinions relative to the merits and demerits of this plan are numerous. At least the problem calls for careful study and a joint committee of the Illinois State Medical Society, the Chicago Medical Society, and the Chicago Hospital Association are making a study of this problem.

Another problem is that of universities practicing medicine. This should not be considered a local problem but rather one of not only state but national importance because its effects may be far reaching if its growth is not discouraged.

Another problem is that of practice of medicine by corporations for profit and the menace of advertising

that some of these corporations are engaged in. Some work has been done along this line in the State of Illinois and a committee has been appointed and an appropriation made for the study and investigation of this problem.

Another problem is that of medical education. There is a feeling among some that one of the ways to correct many of our problems in medical economics is to limit the number of graduates. This problem, of course, is being studied and perhaps some definite recommendation will be brought forth in the near future. It is quite evident that many of the evils in our economic condition have been brought about by doctors engaging in what we term unethical practice, and that at least some of them have been forced into this type of work by their own economic condition. Many of the evils existing in the economic side of medicine could be eliminated if the ethics of the profession could be maintained. That different individuals may attempt to set up and defend their own standard of ethics is quite obvious.

The problems of medicine might be approached under two sub-divisions:

First: those problems under the control of the medical profession.

Second: those problems over which the medical profession has no control.

The first of these problems has been discussed up to this time. The last constitutes the general, political, social, and economic problems of the country. Over such changes we have little or no control except in the organization and general efforts to control obnoxious legislation and to carry out a program of general information and education to the public as a whole, as they relate to the practice of medicine. These, in the state of Illinois, through its legislative and educational committees, have been carried on very successfully for a number of years. Over the general economic conditions we have no control, and one questions the tendency to drift toward social legislation that is apparent at the present time and may ensnare the practice of medicine in its march. Perhaps an overdosage may result.

Finally, it would seem obvious that it is highly important that our work be carried on in the future. There has been some feeling that the dues of the Illinois State Medical Society should be reduced due to the economic conditions in the medical profession, and to the fact that there is a surplus in the treasury. It is the opinion of the Chairman of the Council that while it has been possible to curtail expenses to some degree, that there are many problems needing study and multiplying rapidly and that we should not curtail the work under any circumstances; therefore, a reduction at the present time is not advisable. A study of the states has shown that a reduction in the dues does not increase the membership, and we should not be led to believe that any slight reduction will materially increase the number of our members. Successful wars have to be financed. The Chairman of the Council, with the consent of the Council, asked the Finance Committee to

make a very thorough investigation of our expenses and to make such recommendations for the reduction of expenses as were consistent with the work we have at hand. The Secretary of that Committee has been requested to report to the House of Delegates their findings and recommendations; also a report of the expenses of other state societies and their activities.

During the past year the work of the Secretary has been multiplied by the various problems presented. That he has rendered an exceptionally valuable service cannot be questioned. The Editor of the Journal has rendered a particularly valuable service to medicine not only in the State of Illinois but to the country as a whole. He has given thorough and careful study to the problems and has written forcibly and clearly regarding them, and has stimulated thought and discussion. The honorariums paid the Secretary and the Editor are indeed small for the valuable service they have rendered and are rendering the medical profession.

The report of the Public Policy Committee should receive special attention from the House of Delegates and definite action taken.

The members of the Council have given an unusual amount of their time during the past year to a study of the problems enumerated and to the work in their respective districts. They have worked diligently and with complete harmony for which the Chairman is duly appreciative.

The sudden and tragic death of President-Elect Chas. D. Center brought to a close a brilliant and distinguished career. As a member of the Council for many years and as the Chairman of the Council and finally as President-Elect, he rendered a most valuable service to the Illinois State Medical Society. He was a clear thinker, and a hard worker. He was endowed with a judicious mind and proved a most excellent presiding officer. The loss is great because his devotion was to the public and the profession entirely free from selfish interests. The medical profession needs, perhaps more now than at any other time, such clear and courageous leadership. Dr. Center looked forward to his term of office with great enthusiasm and a determination that the Society should make real progress in meeting its many problems. May we dedicate ourselves to a fulfillment of that determination and pledge our support to his successor.

Let us not forget that all of the problems are individual problems and that their solution can only come from individual responsibility and activity which can best be fostered and promulgated by your active interest in your own county medical society.

Respectfully submitted,

R. K. Packard, M. D.,

*Chairman of the Council.*

Dr. Packard: There are one or two things in the report I wish to call attention to. In the report the question of dues is discussed. We believe that the expenses of the Society have been cut as far as it is possible and maintain the work of the Society. The members of the Coun-



cil all feel that there should be no let-up in the activities of the Illinois State Medical Society. New problems of increasing importance to the doctor are constantly coming up. We believe we should be in a position to have the finances to carry on. At the meeting of the Council, therefore, the following recommendation was made:

That the dues be not reduced for 1935, but that \$1.00 per member be returned to each county medical society for the year 1934.

A survey has shown in various states that a reduction in dues has not increased the membership of the Society.

A second recommendation that the Council would like to make is relative to Section 4, Chapter 11, of the constitution and by-laws: The following substitute for this Section is offered:

"The Committee on Arrangements shall confer with the Council Committee relative to incurring expense for the Annual Meeting. All legitimate and approved expense in connection with the Annual Meeting will be paid by the Society, and the host society will not be held liable for any indebtedness. The Council shall be entirely responsible for the selection of ethical exhibits."

Dr. J. S. Nagel, Chicago: I move that the report be accepted. (Seconded by Dr. C. E. Wilkinson, Danville, and carried.)

The President: At the suggestion of the Council of the Illinois State Medical Society I was asked to appoint a member of the Council or one of the Officers or someone in the Society to visit the State Societies surrounding Illinois. I appointed Dr. C. G. Farnum to visit the Iowa State Medical Society Meeting last week. I will call upon Dr. Farnum for a report.

Dr. C. G. Farnum, Peoria: Following the appointment by Dr. Kreuscher I went to Des Moines last Wednesday as the official delegate of this Society to the Iowa State Medical Society Convention, taking to them our good wishes and our felicitations and expressing the hope that they would have a finer convention than they ever had before. I assure you that your delegate was most cordially treated. The President, Secretary and the President-elect, Dr. Harkness, who is here today, were most courteous and asked me to return their expressions of gratitude for the reciprocal arrangement that had been made.

Dr. E. G. Hamilton, Kankakee: I move that

the report be accepted. (Motion seconded by Dr. J. S. Templeton, Pinckneyville, and carried.)

The President: I shall take at this time the opportunity to present to the House of Delegates our invited guest from Iowa, Dr. Gordon S. Harkness, Davenport, President of the Iowa State Medical Society.

Dr. Harkness, Davenport: I want to thank you for the honor of being here, not only officially but personally. I assure you I appreciate that honor very much. Last week we enjoyed Dr. Farnum's visit very much. I trust we did extend to him every courtesy. If we failed in any particular, I assure you that such failures were mental not cardiac. You in Illinois should be very grateful to Iowa; I do not know how many tons of good fertile soil we gave you last week, but we in Iowa should be likewise very grateful to the Illinois State Medical Society. A matter of two years ago when we were attempting and were successful in removing from the air a most obnoxious individual who was deluding many people with the idea that he could help in one of the worst human scourges, you not only gave your moral but also your material help. Officially I wish to thank you most sincerely for your help.

Dr. Farnum complimented us because we seemed to have accomplished in some respect something which you have not accomplished. We have eighty per cent. of our potential membership organized. We have every county in the state organized except in two instances where neighboring counties have joined. I know that I am going to learn a great deal here today. As a presiding officer of a state society there is no time that we should not learn all that we can in the endeavor to develop our profession. We have devoted more time this year to economics than ever before. I do think that it is important that we should bear in mind the socialistic belief that is endangering the practice of medicine. Our national headquarters admit that we have no slant adaptable to all communities. We must remember that we as doctors are not the ones to decide this issue. This issue is going to be decided by civil bodies. We must convince those agencies that our plan is better than theirs. There is no doubt that these socialistic views do have an appeal to the man of low income. We must, therefore, increase the membership of our state and county organizations. There has never



been a time when it was more necessary for doctors to look at things in a straightforward logical way as to the economics of their profession. This lies with the individual. We hope to go back to the individual physician and bring him in to our county unit. As we bring strength to our county unit we bring strength to our state and national societies. Each State has its peculiar problem. We have peculiar problems in Iowa. I think it is fine, as Dr. Camp suggests, that the Officers in the various States have a chance to compare problems. Then we in turn can take to our organization the strength it needs. We must remember that we must build on a foundation that is strong in order that organized medicine shall prevail.

The President: We have with us today an official delegate from the Indiana State Medical Society, Dr. Franklin S. Crockett of Lafayette.

Dr. Crockett, Lafayette: Our Secretary was unable to be present and as I was coming here in another capacity he has asked me to extend to the Illinois State Medical Society the greetings and felicitations of the State of Indiana Medical Society. I come here in the capacity of one who comes humbly like a disciple at the foot of the master to take back to Indiana many things which you are doing and doing well. We are anxious, in Indiana, to perfect our organization. We are anxious to promote the welfare of our organization, to make it master within its house. We are only too happy to come as your guests and we hope in turn that when we have our meeting next September that we may be honored by a representation from this Society. It is with great pleasure that I thank you for the honor of representing my state association at this meeting.

The Chair: The next order of business is the report of the Councilors.

#### REPORT OF COUNCILOR FIRST DISTRICT

To the Members of the House of Delegates:

It is with deep regret and sorrow that we have learned of the death of our President-Elect, Dr. Charles D. Center. We know that we have lost a friend, a man and an honest worker for organized medicine.

That problems of serious import present themselves to the medical profession cannot be denied. These problems are well set forth in a report of the Chairman of the Council. It is becoming more and more evident that medical organizations are necessary and that it is only by thoroughly understanding the problems ourselves and then by united effort that anything can be

accomplished which will be of service to the practice of medicine. There has been a decided interest shown in medical economics during the past few years.

Jo Daviess County felt the need of an organization and this last fall we were successful in re-organizing their medical society and have been more than surprised in the interest shown. The medical meetings have been held more regularly in the various counties and have been better attended than ever before. If a medical society has a good program and will advertise its program they are sure of having a successful meeting. Due to the fact that transportation is easy, and most important of all, due to the fact that there is a feeling of good fellowship among the doctors so that groups often travel distances to attend medical meetings.

The meetings held by Stephenson County at Freeport two or three times a year have always been red letter days among medical gatherings in Northern Illinois. St. Anthony's hospital staff at Rockford, Illinois, together with the Winnebago County Medical Society for several years have sponsored an all day clinic at the hospital with an evening meeting which has been more and more successful each year. They are planning to repeat it this year on the second of May. Such meetings cover a variety of subjects and are not only of interest and stimulating to all the physicians who attend them, but these physicians renew old friendships and develop that spirit of fellowship among medical men which is essential to happiness in the profession.

A word might be said here for the older men of the profession. Honorary fellowships are available to every man who has been in practice fifty years, and I have found that they are always more than appreciated. Any special attention that can be given these men is not only a duty but it is a privilege.

To the man who feels that the medical profession has never done anything for him, let me beg to ask, what has he done for the medical profession?

Respectfully submitted,

Edward H. Weld, M. D.,

*Councilor First District.*

Dr. Weld: I move that the report be accepted as printed. (Motion seconded by Dr. Lee Frech and carried.)

#### REPORT OF COUNCILOR SECOND DISTRICT

To the Members of the House of Delegates:

In spite of the much talked of depression, there has been no depression in the activities of the County Societies in the Second District.

LaSalle County has maintained its membership. Meetings have been held monthly throughout the winter. The programs, furnished by the Educational Committee, have been excellent, and many doctors from the surrounding counties have availed themselves of the opportunity to attend. Frequently there have been as many as sixty physicians in attendance.

Whiteside County has had a very successful year. In addition to regular meetings it is also holding regular

clinics for physically handicapped children. These have proven highly satisfactory. There were forty patients at the last clinic.

In Bureau County meetings have been held regularly and have been well attended. Recently a Woman's Auxiliary has been organized.

Livingston County has also carried on faithfully this year. It has had regular meetings and good programs. In this county a Woman's Auxiliary has been organized.

Lee County has maintained its membership and interest in meetings. Last spring a large and highly entertaining meeting was held at the Dixon State Hospital.

Woodford County has held meetings regularly. Membership has been maintained and attendance at meetings has been good. A Woman's Auxiliary has been organized.

There are no societies in Marshall and Putnam Counties. Most of the doctors in these counties are members of societies of adjacent counties.

The Illinois plan for the care of Emergency Relief cases has met a varied reception. It has been accepted in LaSalle, Peru, Bureau, Woodford and Whiteside counties but has been rejected by Lee and Livingston counties. To date it has been of no particular advantage to the physicians however.

Throughout the district there has been a great deal of dissatisfaction with the way in which C. W. A. cases have been handled.

Respectfully submitted,

Edgar C. Cook, M. D.,

*Councilor Second District.*

Dr. Cook: I move that the report be approved. (Motion seconded by Dr. C. E. Wilkinson, Danville, and carried.)

#### REPORT OF COUNCILOR THIRD DISTRICT

To the Members of the House of Delegates:

The problems of prime importance in the Chicago district during the past year have been in order of their importance:

1. Care of unemployed indigent.
2. Corporations practicing medicine for profit.
3. Universities practicing medicine.
4. Hospitals practicing medicine.

The first has been handled very well in spite of serious obstacles to overcome and the local committee have given a great deal of their time and deserve much credit.

The second constitutes a very serious problem that is receiving special attention by the State Committee.

The third also constitutes a serious problem and the Committee on Medical Economics of The Chicago Medical Society are studying this problem.

The fourth is also being studied by the Committee on Medical Economics of the Chicago Medical Society, and also by the Chicago Hospital Association.

We believe that some progress is being made and

that continued efforts will correct some of these problems.

Respectfully submitted,

John Nagel, M. D.,

L. E. Day, M. D.,

R. K. Packard, M. D.,

*Councilors Third District.*

Dr. J. S. Nagel, Chicago: I move that the report be approved. (Motion seconded by Dr. E. P. Sloan, Bloomington, and carried.)

#### REPORT OF COUNCILOR FOURTH DISTRICT

To the Members of the House of Delegates:

During the past fiscal year, medical affairs in the Fourth Councilor District have varied quite widely, being influenced both by general and local conditions and the rather extreme changes that have influenced the general population in this time. In some counties the interest in Medical Societies seems to be lagging, with fewer meetings of any consequence, but in the majority, scientific meetings have been held practically on a par with the previous years. The larger and more active societies show a very commendable type of work and as usual the members of the less active societies get their medical interests and information by attending the meetings of their more active neighbors. As it has been in the past, some of the best meetings this year, and some of the largest attended, were held in counties with the smallest memberships.

The activities of the State Medical Society in obtaining for Illinois a fairly satisfactory program for the care of the unemployed, has been reflected throughout the Fourth Councilor District, in a general acceptance of the State Society's plan. Where this has been properly inaugurated, it seems to be working out to a very considerable degree of satisfaction. Opinions expressed in this locality seem to be to the effect that while it is not perfect, it is probably the most workable plan and the one with the fewest defects, that has so far been attempted.

The Councilor has attended all the regular Council meetings and such special meetings with the Finance Committee, as have been called. He has attended County meetings whenever invited to do so, but has not made any special trips where there was no call for his services.

Conversations held with a considerable number of doctors in a variety of locations in this District seems to indicate that from the medical standpoint the worst of the depression has been passed and the attitude of most of them seems to be characterized by a mild and well controlled optimism.

Respectfully submitted,

E. P. Coleman, M. D.,

*Councilor Fourth District.*

Dr. E. P. Coleman: I move that the report be approved. (Motion seconded by Dr. W. E. Kittler, Rochelle, and carried.)



## REPORT OF COUNCILOR FIFTH DISTRICT

To the Members of the House of Delegates:

An analysis of the reports which have come from the County Societies of the Fifth District indicate that at present a greater number of members are delinquent than last year. The economic condition had not sufficiently improved the past year to materially increase the income of the physician or relieve him of the responsibility of caring not only for the usual poor of his practice, but also the greatly increased number of indigents to which the Doctor, is always first heir.

In 1933 there were 274 paid members. At the end of the current year 254 paid members, a difference of twenty. Fifteen are from Sangamon County, which makes a very excellent showing for the remaining counties in the district.

Sangamon County had a guest speaker with an attendance of two hundred. McLean County entertained the President of the American Medical Association with an attendance of two hundred fifty. These were two of the outstanding meetings in the district.

In most of the counties there seems to be a great effort upon the part of the officers to maintain interest and a presentation of excellent programs.

On account of the government promulgating their intentions of caring for the indigent through Bulletin No. 7, a committee from the Illinois State Medical Society was appointed by the Chairman of the Council. As a member of that committee, I can say that I have never served with a committee that worked more patiently and faithfully, being fully conscious of the importance of arranging a plan if accepted by the government that would prove helpful both to the medical profession of the State and those unable to pay for their medical care.

In repeated conversations with the chairman and members of the committee, it was realized that desired success could not be attained at least under every circumstance, but if only reasonably successful a plan of inestimable value would be evolved that will gradually eliminate many of the difficulties of the contacts of the medical profession with the government and the public during the stress of economic times.

This situation has brought about some tendencies in the medical profession in order to better their personal condition, to lend a willing ear to some forms of unethical practice, noticeably in contract practice.

It is highly necessary that organized medicine both State and County hold its membership to meet the difficulties both within and without our profession.

Respectfully submitted,

S. E. Munson, M. D.,  
*Councilor Fifth District.*

Dr. S. E. Munson: I move that the report be accepted. (Motion seconded by Dr. R. L. Green, Peoria, and carried.)

## REPORT OF COUNCILOR SIXTH DISTRICT

To the Members of the House of Delegates:

As Councilor of the Sixth District, it is my pleasure

to report the affairs of my district: I have tried to contact all the physicians in the district during the past year, through attendance at their meetings.

In most of the counties in this District meetings are held regularly and are well attended every month and I am particularly proud of the interest taken in these trying times. A few of the counties hold meetings somewhat irregularly.

Only one county in the District has no Society, but the Doctors attend regularly the meetings of their neighbors.

The most prominent subject before all of the doctors in the district is an economic one, and I am sorry to report that the anxiously expected Federal Aid for the Medical care of the indigent sick has been a great disappointment in that there seems to be a misinterpretation of the law, consequently no money is available yet. I am in hopes there will be some provision for pay for medical services for these people soon. In spite of the many disappointments, however, the doctors in this district have carried on, and in spite of it all, very few members have dropped their membership in organized medicine. We are all hoping prosperity is around the corner. Conditions appear to be better than a year ago.

The Sixth District is proud to report the absence of objectionable clinics in the district.

I want to mention here the shock and great loss to the profession as a whole and the Illinois State Medical Society in particular, the sudden death of President-elect Dr. Charles Dewey Center. The closest friendship existed between Dr. Center and your councilor. To those of us who were privileged to know him intimately, he was a good soldier and a grand man, a true friend, and a staunch fighter for his ideals. The Sixth District and the Adams County Medical Society has suffered a great loss. He had at all times the interests of Organized Medicine at heart.

Respectfully submitted,

Thos B. Knox, M. D.,  
*Councilor Sixth District.*

Dr. T. B. Knox, Quincy: I move that the report be approved. (Motion seconded by Dr. E. P. Sloan, Bloomington, and carried.)

## REPORT OF COUNCILOR SEVENTH DISTRICT

To the Members of the House of Delegates:

A summary of the activities of the twelve County Societies, comprising the Seventh Councilor District has much for commendation. Every County Society responded with a report to the Councilor.

A tabulated report is herewith submitted:

- (1) Paid members—237.
- (2) Eligible for membership, non-members—67.
- (3) Dropped for non-payment of dues—19.
- (4) Deaths—6.
- (5) Meetings held—141.
  - (a) Scientific—78.
  - (b) Business—63.
  - (c) Average attendance—15.

The attendance and interest has been above the aver-



age of recent years at the scientific meetings. Many of the smaller societies have availed themselves of the opportunities offered through the larger centers to hear speakers of note; to have post-graduate courses brought to them; and to attend clinics in the various specialties.

At the business meetings the members have taken a keen interest in the many economic problems—Emergency Relief, the care of the indigent, the unemployed, group hospitalization, and contract practice. While no great achievement has been attained we feel that some slight recognition of the part the family physician plays in the recovery program, is the result of this effort. A better local organization and cooperation would strengthen our cause with the various relief boards.

A few of the societies have endorsed the Committee's report and its operation has materially aided a number of physicians, who up to the present time have received no compensation for their services, but who have given unstintingly and freely of their time and of their money to the alleviation of human suffering and illness.

Harmony has prevailed for the most part throughout the District, with the exception of the Christian County Medical Society, where internal trouble has resulted over contract and group practice.

Respectfully submitted,

I. H. Neece, M. D.,  
*Councilor Seventh District.*

Dr. I. H. Neece: I move that the report be approved. (Motion seconded by Dr. E. H. Oelke, Wheaton, and carried.)

#### REPORT OF COUNCILOR EIGHTH DISTRICT

To the Members of the House of Delegates:

In June, 1933, I received a letter from Dr. Camp, Secretary of the State Medical Society, stating that Dr. Cleaves Bennett, Councilor for the Eighth District had resigned, and that the Council had appointed me to act in that capacity until the next annual meeting. I was sorry to learn of Dr. Bennett's resignation, as he had represented the Eighth District satisfactorily for several years and his ability had been sufficiently recognized as to honor him with the chairmanship of the Council for one year.

In order to acquaint myself with the different component societies of the district I sent a letter to each secretary, telling of Dr. Bennett's resignation and of my appointment to act until the next annual meeting. A questionnaire was enclosed for the following facts regarding each society:

1. Time and place of meeting.
2. Number of meetings during the year.
3. Largest number of members and when.
4. Present membership.
5. Plan in caring for indigent poor.

Eight of the ten secretaries responded to this questionnaire and from the reports I find the societies are holding meetings regularly and that the membership had remained fairly constant. In regard to care of the indigent poor no two counties appear to have the same plan. Some counties employ a physician on an annual

salary, while others have an agreement with the physicians to attend the indigent poor at a reduction from the regular fee. Even with some definite understanding, physicians in some of the counties are not being paid for services rendered to the indigent poor.

It is evident from the reports of the different societies that no plan yet tried in caring for the indigent poor has been found entirely satisfactory. Some of the county medical societies are considering an amendment to their By-Laws prohibiting members of the society to accept any agreement or contract to care for the indigent poor without the approval of the county medical society. This is an important question and should be solved by the medical profession through organized medicine.

Respectfully submitted,

C. E. Wilkinson, M. D.,  
*Councilor Eighth District.*

Dr. C. E. Wilkinson: I move that the report be approved. (Motion seconded by Dr. Mather Pfeiffenberger, Alton, and carried.)

#### REPORT OF COUNCILOR NINTH DISTRICT

To the Members of the House of Delegates:

The Ninth District is composed of fourteen counties lying in the Southeastern part of the State. All these counties are organized with the exception of Pope County which has only four or five active eligible physicians. The Jefferson-Hamilton, Wayne, Franklin, Williamson and Saline county societies are all very active. They have regular meetings that are well attended. Their scientific programs are up to date on timely subjects, and will compare favorably with those held in any county in the state.

In White, Edwards, Johnson, Wabash, Massac, Gallatin, and Hardin the membership is small. In these counties they keep up their organizations but only have scientific programs occasionally. However, with the splendid hard roads leading into other counties the physicians in these small counties are regular attendants at the medical meetings in the larger counties.

The economic depression that has affected other parts of our state has been unusually severe in Southern Illinois. Reports from various parts of the district indicate that times are getting no better fast. I know of no physician in my district whose income has not been cut fifty per cent. as compared with '28 and '29. Many have incomes of one-third and one-fourth of their earnings of 1928-29. Not a few have been compelled to dig into their reserves if they had any and borrow on their life insurance policies. But the physicians are meeting the situation courageously and carrying on in a very commendable way—preventing illness, relieving pain, and doing their best to prolong life. So far as I know none of our physicians have committed suicide, turned highway robber, or committed any crime that has resulted in landing any of them into the State prison.

Respectfully submitted,

Andy Hall, M. D.,  
*Councilor Ninth District.*

Dr. Andy Hall: I move that the report be accepted, as published on page 21-22. (Motion seconded by Dr. J. A. Womack, Equality, and carried.)

#### REPORT OF COUNCILOR TENTH DISTRICT

To the Members of the House of Delegates:

The Tenth Councilor District has had a good year. Every County in the District has had four or more meetings. They have been well attended, interesting and educational.

The majority of our speakers were men who came to us from outside the District. We have many good men who can furnish good papers or addresses, but usually our men prefer specialists who have the last word to say on their subjects.

We are growing more and more accustomed to discussing these papers and often find the discussion almost as profitable as the paper itself.

Union County had eleven meetings the past year. Of these one was a clinic for crippled children; one a heart clinic, and another an annual fish fry. During the year this Society lost one member, Dr. C. A. Parker of Dongola. Two new members were gained.

Jackson County held ten meetings with a report of increasing interest and attendance. No deaths were reported. Two new members added.

Monroe County held eight meetings. No deaths. One new member reported added to their Society.

Alexander County had eight meetings and report an increasing interest in medical organization. They lost one of their veteran members, Dr. H. G. McNemer, sixty-eight years of age.

Pulaski County reports four meetings of their own, with an increasing interest. They also lost a veteran in Dr. M. F. Robinson, eighty-two years of age, who had been practicing forty-four years. They reported one new member. Pulaski County usually attend the meetings in Alexander County.

Washington County held four meetings with speakers from among their own members, and report an increased interest in their organization. One death was reported, that of O. J. Hagebush of Ashley Illinois. They have had two additions to their profession in the County during the year.

Perry County reports eight meetings, and all speakers from other societies, with an increasing interest. Perry County during the year, has lost four medical men. Two were members of the county society and two were retired. Dr. E. J. Birch and Dr. M. C. Carr, both of DuQuoin, Dr. J. W. Smith of Cutler, and Dr. J. T. Marlow of Tamaroa. All veteran practitioners who had practiced many years in the county. Three new men have located in the county during the year.

Randolph County held five meetings during the year, holding their own in interest and organization work. They also lost a veteran in Dr. George Hoffman who had practiced thirty-seven years in the State. Randolph County also had four practitioners come into the county during the year.

St. Clair County is the largest and banner county

of our District, holding ten regular and two special meetings during the year, besides the meetings of the Belleville Branch Society. Both the county and branch societies report an increase of interest and loyalty to organized medicine. They report the death of four members, namely, Dr. O. M. Waters, Dr. J. W. Rendleman, Dr. Royal Tharp and Dr. John C. Gunn. Four new members reported.

Emergency Medical Relief has been generally adopted by the counties in the Tenth District. In fact, some of the counties were among the first to have their application accepted. While the financial part of this contract is not very satisfactory and not as it should be for the physician, we feel that we are doing our part as many of us before were giving practically all to those unable to pay. It is at least something better than we had before this plan was adopted.

The accommodations for traveling have been increased for Southern Illinois, and we are having opportunities for advancement in Medical Science that we did not have a few years ago.

We hope to continue to take advantage of these opportunities.

Respectfully submitted,

J. S. Templeton, M. D.

*Councilor Tenth District.*

Dr. J. S. Templeton: I move that the report be approved. (Motion seconded by Dr. E. H. Oelke, Wheaton, and carried.)

#### REPORT OF COUNCILOR ELEVENTH DISTRICT

To the Members of the House of Delegates:

The Eleventh Councilor District of the Illinois State Medical Society has enjoyed a very successful year. Your Councilor has visited all but one of the County Societies and has found the morale and spirit of the men excellent. In every county, the doctors are meeting their own problems as they arise and are becoming more united in action as they see the trend of the practice of medicine and the problems arising.

Du Page County has a live society with regular monthly meetings which are well attended. In addition to the scientific portion of their programs, they have met the economic side and have adopted a new fee schedule which seems very fair and to meet some of the problems such as contract practice and work for insurance companies. They meet at different cities in the county and always have an excellent attendance. Their membership is ahead of last year.

Will County is one of the few in the state which has a weekly meeting with a scientific program each time. No place in the state has had a program which can compare with that which they have enjoyed. Membership has kept up well and they have about cleared up their delinquency, which resulted from the closure of their banks. Their leadership has been able and they have met their problems fearlessly and several quite serious ones have been cleared up.

Kankakee County Society is in good shape with more members than last year in spite of three deaths and



the election of two men, both over 85, who have been in continuous practice over 60 years, to Honorary Membership. They have regular meetings with speakers from Chicago. I feel that this society has the best spirit that it has had in the past ten years.

Iroquois County has regular meetings of the Society, with programs by outside men. Their membership is practically the same as last year. Aside from the trouble in regard to work for townships and some difficulty in getting the adoption of Emergency Relief plan, they have had little or no trouble.

Ford County Medical Society has no regular meetings due to the scarcity of members and the distance necessary for most of them to travel to get to a meeting. However, they have one or two meetings a year. Their membership is the same as last year.

There have been no malpractice suits filed in this district to the best of the Councilor's knowledge. In most of the counties, the special problem has been to work a plan for taking care of the indigent and unemployed which is satisfactory to the medical profession. Unquestionably the signing of the Illinois Plan by the Illinois Emergency Relief Commission has been a great help in arriving at a solution of this great problem.

Your Councilor had attended all meetings of the Council as well as the Economic and Finance Committees, of which he is a member. Gradually he has increased his knowledge of the problems of the medical profession and is trying in his feeble way to help both in the district and the state.

Respectfully submitted,

E. S. Hamilton,  
*Councilor Eleventh District.*

Dr. E. S. Hamilton: I move that the report be approved. (Motion seconded by Dr. K. B. Rieger, Freeport, and carried.)

# REPORT OF FINANCE COMMITTEE

To the Members of the House of Delegates:

During the past year the Finance Committee has observed the activities of the various Departments of the State Society with the idea of making such recommendations as might seem proper, relative to the reduction of expenses of these Departments, where possible, provided that such a reduction would not in any way impair the efficiency of that Department. The attitude of the Committee has been to attempt to suggest every possible economy and yet not hamper the Departments in their activities.

We find that uniformly these Departments are working with a rather limited amount of help; that the help is highly efficient, but that the results obtained are only because those in charge are working overtime, evenings and holidays, in order to get the work completed. There is a possibility that if our activities increase some of these Departments may have to add additional help. As a matter of fact a number of economies have been effected and there has been a considerable saving to the State Society because of this saving, but it should be understood that these economies should not

be credited to the Finance Committee, but to the various Departments.

For example, the Educational Committee, even though it had a sliding scale of expenses that cannot be estimated with absolute accuracy, has nevertheless been able to save approximately \$2,000.00 in the past year.

In the Editorial Department there has been a saving of \$5,400.00 in the past two years in publishing the Journal and an additional saving of \$1,300.00 by reduction of office help. Whether or not this can be repeated next year is very doubtful.

Several suggestions were considered concerning further economies relative to the Journal but upon due investigation these were found to be impractical and if attempted would undoubtedly interfere with the efficiency of this Department.

The Secretary's Department has had a great increase in the amount of work put upon it, especially with regard to Federal Relief, C. W. A., etc.

A comparative check-up with 16 other State Medical Societies, with a membership of 2,000 or more, indicates that the work of this Department in our Society is being accomplished with only one assistant to the Secretary, where most Societies have three or more, and the expenses of this Department are considerably less, considering the size of the Society, than most of the other Societies studied. If this present volume of work has to be continued the Secretary will probably require an additional assistant.

The investments of the Society have held up proportionately better than the investments of the average member of the Society, and for a long time there has been a feeling on the part of some of the members that these might be needed for some emergency, particularly along legal lines. That this time may be upon us is evidenced by the activities of Dr. Humiston's Committee, which we hope is going to be able to create some legal precedents for which we have been striving for a long time, but which will probably cost considerable.

The Medical Legal Department has a type of expense that can never be accurately predicted but from the work done in the past year, based on the usual schedule of charges, Dr. Ballinger and his Committee have effected a saving of approximately \$2,050.00. This saving in the past year, totalling approximately \$10,000.00 will tend in a material way to offset losses in membership, Journal advertising, and special exhibits at the annual meeting. These have been effected so far without any reduction in the Society's activities.

In the past three months this Committee has made efforts to determine what further economies could be introduced but we are of the opinion, after a considerable investigation, that any further reduction in expenses will be accompanied by a corresponding decrease in efficiency of the Departments involved and that this cannot be done unless we eliminate some of our long established policies.

Respectfully submitted,

E. P. Coleman, M. D.,  
*Secretary, Finance Committee.*



I would like to call your attention to one thing. In the past year we have had a diminished income due to advertising, exhibits, etc. The Council has tried to meet our requirements without interfering with the usual activities. There has been a saving of approximately \$10,000 but I do not believe that can be continued from now on. It has been done, but not by working NRA hours. It has been done by working long hours with little help. If the work is to be carried on this year the same as last year they will probably need additional help in both the Editor's and the Secretary's Office.

Dr. E. P. Sloan, Bloomington: I move the adoption of this report. (Motion seconded by Dr. E. E. Davis, Avon, and carried.)

#### REPORT OF PUBLIC POLICY COMMITTEE

To the Members of the House of Delegates:

The Public Policy Committee in submitting its annual report to the House of Delegates of the Illinois State Medical Society, again calls to the attention of this Legislative Body of our Society, the fact that it is a Constitutional Committee, reorganized each year, and is ever ready to do whatever tasks the House assigns to the Committee.

During the past few years, with the ever increasing activities of our Medical Societies, the work which formerly was left to the Public Policy Committee is now divided among several other necessary committees, which has meant that we have had practically nothing to do for several years.

Medical Society activities today, in their complex form, and with so many attempts of Lay Organizations, Corporations, and Individuals to revolutionize medical practice, means that we must always be alert, and entirely united to withstand these numerous inroads on practice.

During this period of economic stress, many members of our profession have been permitting Insurance Companies through their organized personnel, to dictate the amount of the fees they shall charge for caring for industrial cases. Many times, a full time physician will write the physician telling him what the charge must be, while in other instances an attorney representing the Company will dictate the correct fee to be charged.

It is the opinion of your committee that the county medical society fee bill must be maintained, even though the society cares to make changes in it from time to time, and that every member of this society who cares for cases in which insurance companies pay the bill, the charges should be according to the local established fee bill, which always takes into consideration, the patient's ability to pay for the service rendered. There is no apparent reason why physicians should do this work, make out the necessary reports from time to time, and charge less for this service, than he would charge the patient in civil practice, when

the recipient of the care assumes the financial obligation.

The Illinois State Medical Society does not have a permanent committee known as a Public Relations Committee, and we believe that some committee should be empowered by this House of Delegates to render such assistance as may be deemed advisable, to our members who are having trouble in collecting for services of this nature, when the regular fee bill charge is made. The work of similar committees in other societies and their success leads us to believe that this would be a valuable service to our members, at no additional cost to them, and would be another incentive for membership.

This Committee is willing to assume this task, subject of course, to the desires of the House of Delegates, and the cost of operation would be principally the postage necessary, and a slight expense for the necessary stationery. We sincerely hope that in the approval of the reports of the various committees of the Society, that this suggestion will receive a more serious consideration than the mere approval of the report.

During the past year we have seen many Federal activities which have affected in some way or other, the practice of medicine. The members of the Illinois State Medical Society have done their part in this work, and will continue in the future, especially during the present economic crisis when our services are necessary, to do everything reasonable that is expected of us.

Our relations with the Illinois Emergency Relief Commission have been most friendly, and it is our opinion that the Illinois Plan for providing medical care to the recipients of unemployment relief, is one of the best that has been submitted by any State Medical Society in the country, which has been approved by the Relief Officials.

It is the opinion of your Committee that every county medical society in Illinois should approve this plan, regardless of whether it is necessary to put it in operation in that county, or not.

We again want to assure this House of Delegates that the Public Policy Committee is willing to be considered a Public Relations Committee in every sense of the word, and it is our opinion that we can be of inestimable value to this society if the suggestions made above are approved and put in operation.

The Committee has presented each month, in the Journal, a short communication on subjects that we thought were pertinent, and which we hope the members of the society have read with interest.

Respectfully submitted,

W. S. Bougher, M. D., Chm.  
Chas. J. Drueck, M. D.,  
George Michell, M. D.,

*Public Policy Committee.*

Dr. Moore: I move the adoption of this report. (Motion seconded by Dr. G. T. Cass, Danville, and carried.)

## REPORT OF MEDICO-LEGAL COMMITTEE

To the Members of the House of Delegates:

During the year from May 1, 1933 to May 1, 1934, the Committee reports that there have been twenty-nine (29) new suits started and thirty-one (31) cases have been disposed of. This compares with seventeen (17) new suits started in the year 1933 with a disposal of twenty-five (25) cases during that year.

Of the twenty-nine (29) new suits started during the past year, fourteen have come from down state.

Eight (8) claims have been reported during the year, three from Cook County and five (5) from down state.

At the present time there are two (2) less cases pending than were pending a year ago.

Respectfully submitted,

J. R. Ballinger, M. D., Chm.,  
Roy O. Hawthorne, M. D., Secy.,  
C. U. Collins, M. D.,  
A. H. Geiger, M. D.,  
Oscar Hawkinson, M. D.,  
Walter Wilhelmj, M. D.,

*Medico-Legal Committee.*

Dr. J. R. Ballinger: I move that this report be adopted. (Motion seconded by Dr. E. H. Oelke, Wheaton, and carried.)

## REPORT OF LEGISLATIVE COMMITTEE

To the Members of the House of Delegates:

At the time this Committee made its annual report before the House of Delegates a year ago at Peoria, attention was directed to the fact that the Legislature was still in session, and that a number of important measures in which we were interested were still pending.

The regular session of the Legislature closed in June of last year, and this Committee is pleased to report that no bills which it opposed were enacted into law, despite the efforts of a number of groups who are constantly attempting to lower the standards of medical education. Those interested in following the activities of the Legislative Committee are referred to the annual report in the July, 1933, issue of the ILLINOIS MEDICAL JOURNAL, which goes into detail as to the different types of legislation which were confronting us during that session.

In the closing weeks of the 1933 session of the General Assembly, the osteopaths, fortified by a sizeable "educational" fund, made a most desperate effort to obtain the right to do surgery and prescribe drugs, and the Senate resolved itself into a committee of the whole on two occasions to hear the arguments as favored by the osteopaths and as opposed by the Medical Society. This is evidence of the power that a small group of osteopaths can muster, because the Senate does not resolve itself into a committee of the whole except on matters of great importance to the people of the State. It is gratifying to know that the osteopathic program was unsuccessful. Quite a number of the other cults had bills, but their efforts were more feeble than those of the osteopathic group.

Nearly nineteen hundred (1,900) bills were introduced in the General Assembly, and a large number of them were of interest either directly or indirectly, to the profession of medicine. It is the duty of the members of your Legislative Committee to thoroughly acquaint themselves with each measure that is presented, and if it is of interest to follow that measure throughout its course while it is pending in the Legislature. Many conferences are held with the prominent members of the Legislature, and a member of your Committee is always present at the hearings on measures which deserve our attention.

Your Committee, therefore, reports that in the last regular session of the Legislature the program as outlined by the Council was successfully carried out by the Legislative Committee.

Since the adjournment of the Fifty-Eighth General Assembly there have been several special sessions; in fact, the Legislature has been almost continually in session since the regular session adjourned last year. However, in a special session, only such measures as are contained in the Governor's Call are permitted to be considered, whereas in a regular session any measure may be proposed. In the various extra sessions no matters of specific interest to the medical profession have been introduced.

By direction of the Council, the Legislative Committee has kept in contact with the candidates seeking the nomination at the Primaries. A large number of letters of endorsement have been furnished those seeking renomination who have served in one or more sessions of the General Assembly, and have shown their interest in safe educational requirements for those who wish to treat human ailment in the State of Illinois. Several thousand letters were sent out, and it is gratifying to say that a very large majority of those whom we endorsed were successful in the April Primaries. Letters of endorsement are never furnished to one seeking a first-term in the Legislature, for only after a man has served either in the Senate or the House is it possible for the Legislative Committee to observe his attitude regarding the matters in which we are interested.

In the recent Primaries, twenty-five down-state districts selected only three candidates for the November election from the two parties thus settling the controversy insofar as the House is concerned. The membership of the House of Representatives consists of a majority and a minority party composed of either two Democrats and a Republican from each District, or vice versa. The legislative attitude of the Illinois State Medical Society is strictly non-partisan. Democrats and Republicans are endorsed upon their records and not upon their political affiliation. Your Committee has been complimented on numerous occasions by the leaders in the Legislature on the fair and strictly impartial attitude taken in regard to politics.

The usual bulletin service was maintained throughout the legislative session last year which enabled several thousand physicians throughout the state to be fully informed as to the activities in Springfield. This bulletin service is gratis to all members of the Society; if requested, the Chairman at Springfield will place



the name of any member on the mailing list of the Committee.

The Committee is deeply grateful to the hundreds of physicians throughout the state who interested themselves in the problems confronting us and who willingly consulted with their Senators and Representatives when requested. Especially are we indebted for the fine work in Chicago, in that it is much more difficult to contact legislators in thickly populated districts, and it is very confusing to even know the boundaries of the districts, whereas down-state the districts are definitely set out by counties; however, under the supervision of the members of the Legislative Committee residing in Chicago, the number of the senatorial district of every member of the Chicago Medical Society was furnished the Springfield office, so that it was comparatively an easy task to send information to the doctors of any particular district in Chicago. The finest cooperation was evidenced not only by the Officers and Councilors of the Society but also by the Editor of the Illinois Medical Journal and the chairman of the Educational Committee. The work of the Legislative Committee was greatly minimized by the fine spirit evidenced by all County Societies. Those in charge of the legislative work for the Chicago Medical Society were especially helpful and cooperative at all times, and with the continued support from the membership and the Officers of the Illinois State Medical Society it is to be hoped that our legislative efforts will continue to be satisfactory.

Respectfully submitted,

John R. Neal, M. D., Chm.

Edward Bowe, M. D.,

Thomas P. Foley, M. D.

*Legislative Committee.*

#### REPORT OF MEDICAL ADVISORY COMMITTEE TO ILLINOIS EMERGENCY RELIEF COMMISSION

To the Members of the House of Delegates:

On page 310 in the April, 1934, issue of the Illinois Medical Journal, a rather complete report was made to the Council of the Illinois State Medical Society by this Committee, and it is the desire of the Committee that that report be accepted with the following additions:

Up to the present time, the Illinois Emergency Relief Commission has accredited the following counties for medical relief: Alexander, Bond, Boone, Cook, Champaign, DeKalb, Douglas, DuPage, Edgar, Fulton, Gallatin, Grundy, Henderson, Henry, Iroquois, Jackson, Jefferson, Jersey, Jo Daviess, Johnson, Kane, Lake, Macoupin, Madison, Mercer, Moultrie, Perry, Piatt, Pulaski, Rock Island, St. Clair, Saline, Sangamon, Union, Vermilion, White, Whiteside, Will, and Winnebago.

The following counties have been accepted by the Illinois Emergency Relief Commission, but final authorization is held in abeyance until the proper working personnel, necessary in the conduct of the business, in the several counties is completed: Bureau, Carroll, Coles, McHenry, Marion, Peoria, Randolph, Scott, Stark, Warren, Wayne, and Woodford.

All other counties in the State desiring to cooperate under the plan will be accepted when proper application is presented to the commission. As indicated in the published report above referred to it is not to be assumed that the agreement consummated between the Society and the Relief Commission is perfect. There is every evidence, that those in charge of the Federal relief funds are cooperating in a most helpful way with counties where there are misunderstandings, and while your Committee regrets that one or two counties have refused to cooperate, which, of course, is their privilege, the Committee would appreciate helpful suggestions from those who are displeased with the present set-up in order to better the plan agreed to. We have the assurance of the Illinois Emergency Relief Commission that it stands ready at all times to consider amendments that will be helpful to the public and to the medical profession. Constructive criticism is preferable to a refusal to cooperate without suggestions for the betterment of all concerned.

The members of your Committee have endeavored to cooperate in every problem regarding the relief situation arising in the State.

Respectfully submitted,

John R. Neal, M. D., Chm.

Dr. John R. Neal: I would ask that the printed report be accepted. I would also like to have the report of the Medical Advisory Committee to the Illinois Relief Commission accepted. I would call your attention to the fact that the Advisory Committee to the Illinois Relief Commission is to have a meeting within the next ten days in Chicago, and if any counties have problems which they would like to take up, if you will address the communications to me they will be taken care of.

I am a member of another Committee which is not in the book. This is made up of Dr. Humiston, Dr. Reed and myself and with your permission I would like to have Dr. Humiston give that report.

Dr. E. P. Coleman, Canton: I move that Dr. Neal's reports be accepted. (Motion seconded by Dr. C. F. Newcomb, Champaign, and carried.)

Dr. W. E. Kittler, Rochelle: I move that Dr. Humiston be given the privilege of the floor. (Motion seconded by Dr. C. C. Rentfro, Chicago, and carried.)

Dr. Chas. E. Humiston: A year ago I had the satisfaction of telling this House of Delegates that the Practice of Medicine by a corporation had been declared illegal by a Superior court decision in Cook County, and that the case had been appealed to the Supreme Court. However, the losing corporation withdrew its appeal on the eve of a decision which left Illinois without



a Supreme Court judicial decision on this highly important matter. However, another Quo Warranto suit has been brought against the "United Medical Service," this time by the Attorney General of Illinois. The outcome of this suit is awaited with the greatest interest.

Dr. J. S. Templeton, Pinckneyville: I move that Dr. Humiston's report be accepted. (Motion seconded by Dr. J. S. Nagel and carried.)

## REPORT OF COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates:

Last year the controversial report of the Committee on Cost of Medical Care and the constructive Final Report of the Commission on Medical Education focused the attention of the profession on these two subjects. This year no spectacular event has appeared above the medical horizon. Your Committee on Medical Education and Hospitals must therefore limit itself to a presentation of subjects that are not especially new but are, nevertheless, of perennial importance to the profession.

### MEDICAL EDUCATION

The recommendations of the Commission on Medical Education were summarized in the report of this Committee last year. To what extent these recommendations are being adopted by medical schools is not now known. One of the important chapters in the Report of the Commission was concerned with the relation of the number of medical graduates to the public need. This subject is still exciting the interest of medical educators, for at the last meeting of the Association of American Medical Colleges in October, 1933, this topic was the subject of a symposium. There was a difference of opinion among the participants in this discussion. It was admitted that a wide range of variables,—such as the effect on the cost and the quality of medical care, the danger of shortage of medical personnel in national emergencies, the effect on the morale of the profession—confronts any attempt to limit the number of medical graduates to some definite quota; and that there is need of a process of selection of medical students, for "not everyone who aspires to a professional career has a God-given right to receive a long and highly technical training at public expense." "Although three-fifths of our states provide some support for medical education, the state universities play a relatively minor part in the number of medical students graduated"—actually less than one-third of the total number. The Dean of the School of Medicine of one endowed university is convinced that "the health service is not entirely meeting the genuine needs of the public at the present time, either quantitatively or qualitatively";—that "the chances of there being an oversupply of physicians above the public need are not such as to justify serious concern at the present time." In the lively general discussion of this symposium the unfortunate plan of limiting the number of medical graduates in Norway was described. This artificial

restriction has proved "unsatisfactory to everybody." Practicing physicians have felt, especially during the past three years, the pressure of competition for patients able to pay for medical service. Many believe that the medical schools should restrict the number of admissions and thus reduce the number of graduates. This symposium of the Association of American Medical Colleges is cited in order to illustrate the complexity of the problem. "Planned" medical service in our social system is as great a riddle as "planned economy."

The number of applicants for entrance to seventy-nine medical schools in the United States increased from 10,006 in 1926-27 to 13,655 in 1929-30 and dropped to 12,128 in 1933. But the number of applicants accepted has steadily increased from 6,420 in 1926-27 to 7,578 in 1933. But of the 6,974 medical students accepted in 1928, only 4,895 graduated in 1932. The medical course itself is an important factor in limiting the number of medical graduates.

The standards applied in the selection of students for admission to medical schools in the United States have been extended beyond mere grades and credits in certain specified premedical subjects, and this has eliminated many who sought admission to the profession. In addition to the educational requirements that have long been demanded, most applicants for admission to medical school must now submit to "aptitude tests." These are carried out among the premedical students in colleges and universities. They include procedures intended to test the student's comprehension and retention of what is read, his visual memory, his memory for content, his premedical information, his vocabulary, his ability to understand and follow directions, and his ability to read effectively (a quality possessed in high degree by very few people). Students who, by these tests, exhibit the highest degree of "aptitude" usually make the best medical students and internes.

These are some of the methods now employed by medical schools not so much to reduce the number of graduates as to limit medical education to those who possess the greatest aptitude for it and are best qualified to practice the profession.

Complaints by the medical profession against the increase in free or part pay clinics in hospitals and medical schools are becoming more and more insistent. The abuse of medical charity by patients who seek treatment at free or part pay clinics can best be met by some such plan as that in use in St. Louis where a patient asking free treatment must present an affidavit sworn to before a notary that he is unable to pay for such service. A university may entirely dispense with a social service department and, through its medical school, may openly practice medicine in competition with its own graduates and with the medical profession in general. The social service departments of most universities do, however, make an honest effort to determine the ability of a patient to pay for medical service before admitting him to the clinic. During the past three years the number of indigent patients seeking medical service at free clinics has increased many-fold. Most medical school clinics have limited admissions to the number of patients needed for the

teaching of their students. The increased number of free patients has placed upon medical schools a heavy financial burden which might have been materially reduced if they had established low-priced pay clinics. But they have conscientiously refrained from taking this easy way out.

### HOSPITALS

The recent hospital number (March 31, 1934) of the Journal of the American Medical Association contained an array of statistics concerning hospitals and related institutions in the United States. Your Committee has analyzed these statistics as they apply especially to the State of Illinois.

In 1933, there were in the United States 6,437 recognized hospitals with 1,027,046 beds, an average of one hospital bed to each 122.3 of the population. In the same year in Illinois there were 327 recognized hospitals with 70,762 beds, a ratio of one hospital bed to 110.6 of the population. The corresponding ratios of several other states are presented for comparison:—Massachusetts, 1:75; New York, 1:81; California, 1:93; Minnesota, 1.94; Wisconsin, 1:99; Michigan, 1:117; Ohio, 1:131; Indiana, 1:143; Texas, 1:203; Georgia 1:219; Mississippi, 1:247.

During the boom year, 1929, the non-government-owned hospitals throughout the country were occupied to only 64.5 per cent. of their capacity; in Illinois, 66.7 per cent. Throughout the nation in 1933, there were 1,776 government-owned hospitals, with 694,473 beds and an average census of 626,074, i. e., 90 per cent. capacity occupancy; while 4,661 non-government-owned hospitals with 332,573 beds and an average census of 184,197, or 53.5 per cent. capacity. In Illinois in the same year there were 81 government-owned hospitals with a total bed capacity of 46,478 and an average census of 42,271, or 91 per cent. capacity occupancy. The lowest average occupancy in this group was 83 per cent. in the eight federal hospitals; the highest, 96 per cent. in the 26 county hospitals. Non-government-owned hospitals in Illinois number 246 with a bed capacity of 24,282 and an average census of 11,912, an average of 49 per cent. occupancy. The lowest in this group were the Individual and Partnership Hospitals with an average of 31.1 per cent.; the highest, the Fraternal Hospitals with 61.7 per cent.

Even this degree of occupancy was due in part to the insistence upon hospitalization of all patients by many physicians for their own convenience rather than because of the necessities of the case. By having a patient in a hospital the physician can, with the aid of internes, residents and conveniently available laboratories, work up each case more thoroughly with less personal effort than can be done in the patient's home. But indiscriminate hospitalization of patients brings in its train a series of evils from which the profession as a whole suffers. It increases unnecessarily the cost of medical care to the patient, and is the source of much of the not altogether unjust criticism of the laity against the profession. No merchant would think of demanding that a customer stay in an expensive hotel before permitting him to purchase the goods he desired. Yet that is essentially what many physicians are do-

ing. In the second place, indiscriminate hospitalization, greatly weakens the profession's strongest argument against state medicine, namely that the personal relationship between physician and patient is essential to the best medical care. This personal relationship is spread very thin in a hospital, chiefly because so many other persons come between the doctor and his patient. Finally, this practice sets a pernicious example for the younger generation of physicians. The interne and the young assistant to the "famous doctor" come to look forward to the time when they, too, can arbitrarily order all their patients to the hospital where they can be seen at some convenient time that will not interfere with other activities.

Of the 327 recognized hospitals in Illinois, only 255, or 78 per cent., have clinical laboratories and only two-thirds of these are in charge of graduate physicians. That is, only 52 per cent. of the hospital laboratories in this state are under qualified directorship. Conditions are somewhat better in the field of roentgenology. In 1933, 262 hospitals, or 80 per cent., had X-ray departments, 178 or 78 per cent. of which were in charge of physicians. The superintendents of only 27 per cent. of our hospitals are physicians; in 47 per cent., the superintendent is a nurse; in the remainder, a layman.

The number of hospital out-patient departments in Illinois has increased 15 per cent. during the past six years, and the attendance has been multiplied almost five times. In 1927, ninety-seven hospitals had out-patient departments with 357,044 patients (average, 2681 per hospital) and 471,363 visits (average 4838). In 1933, one hundred twelve hospitals had out-patient departments with 514,182 patients (average, 4591), and 2,227,437 visits (average, 19,888).

The facilities for the care of cancer patients in Illinois are deplorably inadequate. A very considerable percentage of accessible concerns *can* be eradicated if appropriate treatment is begun early and applied competently and adequately. Appropriate treatment of cancer requires the cooperation of at least a pathologist, a surgeon, a roentgenologist, and a social service department, in an institution suitably furnished with operating rooms and sufficient supply of radium and X-ray. Not more than two or three hospitals in Illinois, probably that figure is too high, are properly equipped for such work. The medical profession could do no greater service to the state than to urge the establishment of special cancer hospitals in several strategic locations in the state. No physician now feels that it is any reflection on his professional standing and ability if he sends a patient with incipient tuberculosis to a sanatorium where he can receive proper treatment which the physician is not prepared to furnish, and, because of the expense of equipment, can not be expected to furnish. For the best interests of his cancer patients the physician should assume a similar attitude toward this disease.

### RECOMMENDATIONS

Your Committee respectfully makes the following recommendations:

1. That no effort be made at this time of unsettled economic conditions to limit the number of medical



students in our schools except insofar as this is accomplished by the methods now employed in selecting the most promising of those who apply for admission.

2. That the crusade against unfair competition by university clinics be pressed with persistence but with discretion.

3. That the building of new hospitals and the enlargement of those now in existence be discouraged at this time except in those localities in which more hospital beds are clearly needed.

4. That indiscriminate hospitalization of patients be deprecated, and that hospitalization be based upon the medical needs and the economic status of the patient rather than upon the convenience of the physician.

5. That the establishment of specially equipped cancer hospitals be vigorously advocated by the medical profession, and that physicians be encouraged to send their cancer patients to these hospitals just as they now send their tuberculous patients to sanatoriums especially equipped to treat this disease.

Respectfully submitted,

J. P. Simonds, M. D., Chm.,

W. R. Marshall, M. D.,

H. O. Munson, M. D.,

*Committee on Medical Education  
and Hospitals.*

Dr. Sloan, Bloomington: I move that the report be accepted. (Motion seconded by Dr. G. T. Cass, Danville, and carried.)

#### REPORT OF COMMITTEE ON RELATIONS TO PUBLIC HEALTH ADMINISTRATION

To the Members of the House of Delegates:

Each year this Committee sends to the State Health Department Director its personnel with an assurance of willingness to cooperate in any service which might come under its scope of powers.

The Committee has asked for work, and no assignments have been received. There are problems of health which involve our citizens which should be met by this Committee. The Department of Public Health and the Legislative Committee are busied with affairs of health and legislation which could properly be handled by this Committee in an advisory capacity.

The policy of this Committee will continue to be to notify the Director of the Department of Public Health of the personnel of this Committee immediately following the annual meeting, with an expression of willingness to work.

The Committee asks of the legislative committee that they refer any type of work coming under its scope during the sessions of the general assembly.

Any recommendation from the House of Delegates will be gratefully received.

Respectfully submitted,

Frank F. Maple, M. D., Chm.,

*Committee on Relations to Public  
Health Administration.*

Dr. G. M. Cushing: I move that the report be accepted. (Motion seconded by Dr. E. H. Oelke, Wheaton.)

Dr. Lee M. Frech, Decatur: As a member of this Committee I would like to make a minority report. I would like to differ from this report in that the Committee has done nothing. Second, in justice to the Director of Public Health of the State of Illinois, Dr. Frank J. Jirka, I wish to say that there has been no contact made between the Committee and the Director of Public Health except by mail, sending in the personnel of the Committee. In the report it states, "The policy of this Committee will continue to be to notify the Director of the Department of Public Health of the personnel of this Committee immediately following the annual meeting, with an expression of willingness to work." In other words, the Committee will continue as it has in the past.

Dr. Jirka has assured me on several occasions that he wants to cooperate with the State Society. He made a plea in the Secretaries' Conference this morning that physicians protect themselves against lay organizations which foster the socialization of medicine. Reading a letter from Dr. Jirka in addition to what he said, "I wish that the Committee in Relation to Public Health Administration would become a little more active. I hope I am not presumptuous in assuming that this Committee has not been active. In other words, members of this Committee should come to the front in matters of public health and cooperate in the fight against such organizations as the Illinois Society for the Prevention of Blindness, American Heart Association, etc."

I wish to recommend to the House of Delegates as an amendment that this Committee either be instructed to act or be dispensed with entirely.

Dr. Frank Heda, Chicago: I wish to second Dr. Frech's amendment.

The President: We shall first vote on the amendment. (Amendment carried.)

Dr. Kreuscher: We shall not vote on the original motion as amended. (Motion as amended carried.)

#### REPORT OF EDUCATIONAL COMMITTEE

April 1, 1933 to March 31, 1934

To the Members of the House of Delegates:

A report of the activities of the Educational Committee is in reality a resumé of contacts made by individual physicians and county medical societies with individuals and organized lay groups. The direction or



supervision of the Educational Committee avoids overlapping of effort in carrying out a well organized program. Progress has been made during the past year because of the excellent support given by Illinois physicians and the Committee wishes to express appreciation to these men and women for the part they have played in advancing scientific medicine and in promoting better team work between lay groups and organized medicine. The response to the Committee's many calls has been excellent and every request has been met when sufficient notice was given. An educational program could not be carried on in a state as large as Illinois, if hundreds of doctors were not willing to do even more than their share of work. A report of the Educational Committee is a report of cooperation.

The 102 counties of the state have been served in some way by the Committee. A number of counties have used extensively every service offered by the Committee, receiving far more in return than the small amount appropriated from the members' dues. Few state medical societies offer their component societies such a complete service, free of cost. It is the desire of the Committee to have every county medical society and every organized group make full use of its services.

A statistical report, representing to some degree what has been accomplished, lacks the ability to show the end results of every radio broadcast, the hundreds of health programs given, the thousands of health articles read in newspaper columns, the helpful conversation here and there. It is well to bear that fact in mind in considering the report of the Committee.

### RADIO

A total of SIXTY-ONE HOURS was given the Educational Committee by radio stations WGN, WJJD, WAAF, KYW of Chicago. The Committee has not paid one cent for this time, contrary to the idea prevalent in some groups. It might be interesting to figure just how much four fifteen and one ten minute talks a week are worth in cold cash. The 227 health talks broadcast during those periods were given as a part of the educational programs of the stations. They conformed with the high ethical standards of the medical profession. All papers were written and broadcast by members of the Chicago Medical Society and endeavor was made to give many members opportunity to prepare and broadcast these talks. Members of the Committee censored all material before it was given over the air and the papers were also submitted to the stations.

Copies of radio talks were furnished LaSalle County Medical Society for use over a local station. The Committee is on the reciprocity list of the American Medical Association to receive copies of nation wide broadcasts in return for copies of the Illinois talks. The State Department of Health also furnishes the Committee with copies of its radio programs. The Committee cooperated with other medical organizations—American College of Surgeons, the Chicago Dental Society—in giving time to visiting doctors and dentists for radio broadcasts. The Dental Society in return gave the Committee its time over the air for special programs.

### SPEAKERS' BUREAU

497 Health lectures were given by doctors before lay groups at the request of the Committee. Reports from these lay organizations indicate that health programs are acceptable and that popular talks can be satisfactorily presented by professional men. The Chairmen of the Public Health and Child Hygiene Committee of one of the districts of the Illinois Federation of Women's Clubs wrote, "I am writing to thank you and let you know that I did appreciate you helping the clubs in this District to get speakers on their programs. I have worked through you for four years and not one complaint have I had. I do truly feel that the Educational work has done much good and that I have had four fine years. Thank you many times for your kindness and interest."

The appointments filled represented practically every type of organization in the state. Women's Clubs and Parent Teacher Associations probably made greatest use of the Speakers' Bureau and after all the membership of these two state-wide organizations represents thousands of Illinois homes. Parent-Education study groups have sought guidance in their programs. An increasing number of health talks were given in high schools and junior colleges. The Y. M. C. A.'s of Chicago found health talks presented by doctors of the Chicago Medical Society attractive to their members and series of programs were arranged by the Committee for noon and evening meetings of the Central Branch, outlying branches and the Y. M. C. A. Hotel. Attendance at these meetings varied from fifty to two hundred men.

Presidents of the smaller colleges of the state were offered an opportunity of having a doctor, well qualified to present the subject of cancer, appear before the students and to show the Canti film. The purpose of this offer was to give the young college student a saner, sounder view of the problem of cancer than their mothers and fathers now have. This offer was accepted by eight colleges.

The Chicago Medical Society and the Committee arranged attractive health programs for A Century of Progress. Lectures were given four afternoons a week during the period of the fair and reached people from all over the world visiting the Hall of Science. Doctors who gave the lectures and conducted the question periods were most enthusiastic about the response and the intelligent questions indicating a public health consciousness.

Districts of the State Nurses Association found the Committee able to furnish attractive programs for district meetings. Home Bureaus supervised by the Extension Department of the University of Illinois requested speakers for city and county meetings. The Illinois Federation of Women's Clubs requested speakers for individual club, county and district programs. The Committee scheduled all of the health talks for some of the district conferences. Speakers were also secured for the monthly programs of the public health chairmen of the Chicago district.

A short article about the Speakers' Bureau was pub-

lished in the August 15 number of the Illinois Health Messenger and resulted in many requests for speakers.

#### PUBLIC LIBRARIES

It has seemed that a service of some kind should be offered public libraries. A few weeks ago a letter was sent to librarians of the Branches of the Chicago Public Library for the purpose of finding if they wished to have the short articles, prepared for newspapers, to post on their bulletin boards and for pamphlet files. The Head of the Accessions Department of the Chicago Public Library sent the following message to the Committee, "We will appreciate it if you will include all of our Branch libraries (45) on your mailing list to receive these articles. We feel you are doing a splendid service in distributing these health articles and thank you for your interest and cooperation." Following this enthusiastic response, a similar service was offered down-state libraries and on March 31, a total of FORTY-FOUR of these were on the mailing list to receive weekly material. The medical profession should see that libraries are supplied with the right kind of health literature and the Committee in a small way is attempting to give out the information which is available in mimeograph form.

The Red Cross hearing of this service to libraries, asked the Committee if copies of suitable articles on prevalent health conditions might be furnished the seventy nurses of the Red Cross to keep for reference in their note books.

The same type of material is also being sent to Central Branch Y. W. C. A. of Chicago for posting on the Health Education Department Bulletin Board.

#### PACKAGE LIBRARIES

An increasing number of requests have been made for the package libraries. Samples of the libraries have been furnished other state societies. These have been compiled as reference material for doctors scheduled to present lectures at lay meetings. No attempt has been made to compile strictly scientific material. In one county, the health chairman of the Women's Clubs asked the Committee to assemble twelve libraries to be used as a basis for study by the young mothers' club of the county. One doctor using the material commented, "Herewith I am returning the folder on DIPHTHERIA, which you were good enough to entrust to my care. I wish in the first place to thank you heartily for this favor. The folder certainly contains an abundance of material and it must have required plenty of work to gather it. This material should be of much value to any community that is putting on a diphtheria campaign."

As far as we know the Illinois State Medical Society is the only state medical society maintaining this particular type of help to its members. College students have found the material valuable assistance in the preparation of term papers and essays. Doctors' wives have also used the material in their auxiliary work.

#### GROUP CONTACTS

One of the important fields of work for the Committee is contact with well organized lay and professional groups. This department is strengthened every

year, as the Committee finds opportunity of stressing the need for better cooperation in all health programs. The Chairman of the Public Health and Child Hygiene Committee of the Federation of Women's Clubs has used the services of the Committee and that Committee was asked to approve the outline for public health work of the Federation. The office of the Committee then mimeographed hundreds of copies of this outline for the State Chairman. The American Medical Association, at the request of the Educational Committee, furnished attractive health exhibits for the Annual Meeting of the Illinois Federation of Women's Clubs and also for the Illinois Congress of Parents and Teachers. The Public Health Chairman asked the Committee to send out postal card announcements to presidents of clubs in the districts when doctors were scheduled to address meetings of women's clubs. Health talks given over the radio by members of the Federation were also submitted to the Committee for censorship and approval.

The Illinois Congress of Parents and Teachers was given support in their plans and promotion of the Summer Round-Up. Special articles were prepared and sent to Illinois newspapers. Advice has been given to the health leaders in the Congress when it has been sought. Contacts have been made for local leaders with leaders of the local county medical societies.

The Committee has given publicity to the Hearing Aids Committee of the Chicago Women's Aid. An exhibit from the American Medical Association was procured for the annual exhibition of Settlement Houses of Chicago. Similar exhibits were set up for Y. M. C. A.'s. A complete report of the nursing service given by the Metropolitan Life Insurance Company in Illinois was obtained at the request of their chief.

With the organization of the Woman's Auxiliary, the Committee obtained another avenue for educational activities. Every assistance possible has been given the Auxiliaries and their officers. Thousands of pieces of literature and announcements have been mimeographed, a charge being made only for the supplies used. Help and advice have been given the program committees and special cooperation was extended the Auxiliary in the laity day programs—one on mental health when Dr. C. F. Read of the Elgin State Hospital spoke at A Century of Progress, another on cancer at the Murphy Memorial Hall in Chicago with Dr. Clarence Little as speaker, and a program on animal experimentation by Dr. A. J. Carlson given by the Jackson Park Auxiliary.

The Chicago Board of Health incorporated the reports of the Educational Committee in compiling statistics to be entered in the annual city health contest sponsored by the United States Chamber of Commerce.

The Radiological Society, the Illinois Branch of the American Academy of Pediatrics, the Illinois Tuberculosis Association, the Arthritis Club and other special societies have supported the Committee and helped with special programs. Close contact was maintained and splendid cooperation secured from the various departments of the American Medical Association and the State Department of Public Health.



The Committee contributed to the Maternal Hygiene Exhibit sponsored by the Medical, Dental and Allied Science Women at A Century of Progress. A contribution was also made to a fund for publishing pamphlets on animal experimentation, to be used in lay meetings.

The Chairman of the Committee was invited to address the annual meeting of school physicians in session at Indianapolis in connection with the American Public Health Association meeting. The subject presented was "Medical Leadership in Health Work." The Secretary of the Illinois State Medical Society was invited to present a paper on the work of the Educational Committee at the Secretaries Conference of the American Medical Association. The Secretary of the Committee was invited to address the graduating class of the George Williams College of Chicago and to tell the students how to work with organized medicine and how to secure the services of the Educational Committee.

The office of the Committee assisted other departments of the Illinois State Medical Society whenever possible, namely the Veterans' service Committee, the Medical Economics Committee, the Legislative Committee and the Special Committee on Emergency Relief.

The Secretary attended meetings of the following organizations: Illinois Federation of Women's Clubs, Parent Teacher Association, Health Officers Conference, American Legion, Dental Conference, National League for the Hard of Hearing, Secretaries Conference of the A. M. A., Annual meeting of the A. M. A., Child Hygiene Advisory Committee, Women's Auxiliary, Superintendents of Schools of the Chicago Board of Education, Conference of Settlement Houses, Council Medical Education and Hospitals, Illinois Society for the Prevention of Blindness, Woman's City Club, Chicago Woman's Aid, Chicago Council for Jewish Women, Chicago Medical Society, Child Health Recovery Committee.

NEWSPAPER SERVICE

The purpose of the press service of the Committee has been to supply timely material on existing health conditions and to furnish editors with announcements of medical meetings and events. County medical societies using the office of the Committee for securing publicity of their meetings have found that the newspaper announcements increased attendance and served as a reminder following the receipt of formal invitations from the secretary. During the last twelve months announcements of meetings of the following societies were released to Illinois newspapers: 51 Bureau, 39 Henry, 92 Perry, 109 Jackson, 79 Warren, 125 Fulton, 34 Monroe, 59 DeWitt, 53 Winnebago, 101 Madison, 227 Southern Illinois Medical Association, 59 Fifth Councilor District meeting, 183 Whiteside, 1,316 Illinois State Medical Annual Meeting, 230 McLean, 822 LaSalle, 460 Chicago Medical Society and Branches.

Special publicity was sent out concerning the Chicago Medical Milk Commission and Certified Milk, physicians and the physical examination of pilots of airplanes, clinics for physically handicapped children sponsored

by county medical societies. Special educational articles on TYPHOID FEVER were released to newspapers in the following counties when that disease was prevalent: Adams, Alexander, Calhoun, Champaign, Clay, Fayette, Jackson, Knox, McLean, Macon, Marion, Massac, Pulaski, Randolph, Saline, Scott, Union, Warren, Wayne, White, Whiteside, Will, Williamson. Articles on SCARLET FEVER were sent to newspapers in counties Adams, Coles, Champaign, Fayette, Kankakee, McLean, Peoria, and Tazewell. Articles on CHICKEN POX were sent to counties Clark, DeKalk, Logan, Stephenson, Williamson, and cities of Aurora, Berwyn, Cicero, Lincoln, Rock Island. PNEUMONIA articles were sent to Rockford, Rock Island, Streator and East St. Louis and articles on the importance of pasteurized milk to the city of Mattoon. Special material on COLDS was sent to 33 counties for use by the Home Bureau.

102 health educational articles were written and approved by the members of the Committee.

The material seems to be quite acceptable to the editors and although many publishers have cut down the size of the papers and others are using syndicated material except for purely personal local news items, editors say they use the material whenever they can and have the space. Organized medicine should use every opportunity of keeping before the public and the Committee has the facilities for making this possible provided county medical societies will furnish it with material. It is much easier to get a story in a newspaper about a meeting if the editor has been previously notified that such a meeting was to be held and if he desired could send a reporter.

9,287 Articles were sent out by the Committee during the twelve months.

SCIENTIFIC SERVICE

191 Scientific talks were scheduled for medical meetings through the office of the Educational Committee. The entire cost of this program is paid from the appropriation to the Educational Committee. (See full report.)

MISCELLANEOUS SERVICE TO COUNTY MEDICAL SOCIETIES

The Committee offered to assist county medical societies with scientific programs and to promote interest in these meetings through newspaper publicity and by personal invitations to all doctors in adjoining counties. A number of medical societies have developed into excellent working groups with outstanding monthly programs and large enough audiences to warrant a speaker coming from some distance. This type of service was given to the counties listed:

Number of Notices	Counties
2,923	LaSalle
918	Bureau
211	Franklin
177	Henry
1,022	Perry
305	Randolph
34	Monroe
514	Southern Illinois Pediatrics Meeting
450	Jefferson-Hamilton
132	Livingston



191 ..... Jackson  
579 ..... Kankakee

Hundreds of copies of the Periodic Health Examination blanks have been sent to physicians all over the state. This would indicate that both doctors and laymen are awakening to the importance of the annual examination as a safeguard for good health.

Moving picture films and slides have been secured for doctors but as most of this material is quite out of date, the Committee does not recommend its use.

There are many opportunities for giving information to the public and the medical profession should not hesitate to let the public know what is doing for the welfare of our communities. Every individual contact should be demanded and if doctors will continue to cooperate with the Educational Committee, the program can be enlarged and organized medicine assume leadership in all health work. The office of the Committee is maintained to serve the doctor and the public. Are you as an individual making use of that service?

Respectfully submitted,  
R. R. Ferguson, M. D., Chairman,  
William D. Chapman, M. D.,  
C. C. Maher, M. D.,  
O. O. Stanley, M. D.,  
G. C. Otrich, M. D.,  
Jean McArthur, Secretary,  
*Educational Committee.*

Dr. E. P. Sloan, Bloomington; I move the adoption of this report. (Motion seconded by Dr. G. T. Cass, Danville, and carried.)

#### REPORT OF SCIENTIFIC SERVICE COMMITTEE

April 1, 1933 to March 31, 1934

To the Members of the House of Delegates:

191 Speakers before medical groups in 37 counties, classified by subject as follows:

- 42 Pediatrics.
- 11 Obstetrics and Gynecology.
- 6 Surgery.
- 8 Gastro-Intestinal.
- 5 Cancer.
- 4 Tuberculosis.
- 7 Endocrinology.
- 5 Neurology and Psychiatry.
- 6 Allergy.
- 3 Dermatology.
- 6 Eye, Ear, Nose and Throat.
- 7 Genito-Urinary and Proctology.
- 14 Orthopedics.
- 7 X-Ray and Radium.
- 15 Heart.
- 18 Medicine.
- 20 Medical Economics, Ethics, Organization.
- 5 Nephritis.
- 2 Miscellaneous.

In an endeavor to bring before physicians of the state the latest information concerning pre-natal care and the care and training of children, the Academy of Pedia-

trics in cooperation with the Illinois State Medical Society has presented post-graduate courses in the various districts of the state and before branches of the Chicago Medical Society.

The Council of the State Society has endorsed the plan of county societies directing their own clinics for physically handicapped children. During the past year such clinics have been held at Murphysboro, Jackson County; Sterling, Whiteside County; Monmouth, Warren County. These clinics are well established and are receiving financial support from the men's and women's lay organizations of the communities.

Physicians are evidently becoming more interested in the possibilities offered through the periodic health examination. Hundreds of copies of the blanks prepared by the State Medical Society and obtainable through the Secretary or the office of the Educational Committee, have been sent out upon request.

Scott County Medical Society of Iowa asked the Committee to arrange the monthly programs for its members.

There are many doctors who have indicated a willingness to go out before medical groups for scientific meetings. This list is representative of Cook County and down state and the Committee finds little difficulty in arranging satisfactory programs for any county. In most instances the secretary of the local society sends in a list of speakers and subjects desired and this has proven more satisfactory than leaving selection with the Committee.

The cost of the work of the Scientific Service Committee is taken care of by the Educational Committee appropriation and all of the work is done in the office of that Committee.

<i>County</i>	<i>Speaker</i>	<i>Subject</i>
Whiteside	Harold Swanberg	"The Use of Radium in Treatment of Uterine Hemorrhage."
Whiteside	Harold M. Camp	Clinics for the Physically Handicapped Child.
Kankakee	C. I. Reed	William Beaumont, the Backwoods Physiologist.
Vermillion	S. M. Feinberg	Food Allergy.
Milwaukee, Wis.	Harold Swanberg	X-Ray and Radium.
Will-Grundy	Frank Phifer	Complications of Gonorrhea in the Male.
Hardin, Iowa	Harold Swanberg	X-Ray and Radium.
Perry	N. C. Gilbert	Internal Medicine.
Perry	W. B. Cubbins	Injuries Around the Knee Joint.
Clinton, Iowa	Arno B. Luckhardt	Recent Advances in Endocrinology.
Logan, Ohio	H. Swanberg	X-Ray and Radium.
Bureau	Clement L. Martin	Diagnosis and Treatment of the More Common Ano-Rectal Diseases.
Bureau	J. S. Ashby	Gastro-Enterology.
LaSalle	C. G. Weller	Diagnosis and Treatment of Ureteral Calculi.
Will-Grundy	F. B. Moorehead	Plastic Surgery.
Union	G. F. Stericker	Cardiac Pain.
Union	H. H. Cole	Heart Disease.

- Jackson—H. M. Hedge—Some Common Diseases of the Skin.
- Mercer—A. E. Williams—Obstetrics in General Practice.
- Macon—R. S. Berghoff—Heart Disease.
- Will-Grundy—J. H. Hutton—Relation of Diabetes to Other Endocrine Disorders.
- Monroe—H. S. Houston—Contagious Diseases.
- Central, Ill.—E. G. C. Williams—Clinic and Cancer Program.
- Will-Grundy—Aaron Arkin—Organic Heart Diseases and Their Differential Diagnosis.
- Fulton—James G. Carr—Cardio-Vascular Diseases.
- Fulton—Lena K. Sadler—Medical Cooperation.
- Knox—Henry W. Grote—What the General Practitioner Might Expect from Radiology.
- Scott, Iowa—F. L. Foran—Allergy.
- Will-Grundy—Nelson M. Percy—Goiter.
- Clinton, Iowa—Stanley Gibson—Pediatrics.
- Henry—H. W. Woodruff—Prevention of Blindness.
- Henry—R. K. Packard—Medical Economics.
- LaSalle—L. H. Meyers—Arthritis.
- LaSalle—W. J. Riley—Symposium on "Paresis."
- Geo. A. Wiltrakis,
- A. J. Azar.
- Will-Grundy—Jacob Meyer—Medical Aspects and Treatment of Gastric and Duodenal Ulcer.
- Ford—Geza deTakats—Varicose Veins.
- Ford—E. A. Edwards—Gynecology.
- Monroe—F. A. Neuhoﬀ, D. D. S.—Dentistry as Applied to Public Health.
- Ravenswood Hospital—W. A. Newman Dorland—The Origin of Ovarian Tumors.
- Will-Grundy—Frank Maple—Prenatal Care.
- Will-Grundy—H. M. Richter—Russia and Its New Problems.
- Perry—W. T. Carlisle—Diagnostic Aids in Gynecology.
- Perry—G. H. Scupham—Course and Treatment of Nephritis.
- Vermilion—Oscar B. Nugent—Primitive India.
- LaSalle—F. M. Meixner—Clinical Aspects of Childhood T. B.
- LaSalle—G. H. Mundt—Fundamentals of Oto-Laryngology.
- LaSalle—R. K. Packard—Medical Economics.
- Jackson—Philip Kreuscher—Clinic for Handicapped Children and "The Ache in Your Back."
- Whiteside—Philip Kreuscher—Clinic for Handicapped Children and evening meeting, "Backache."
- Warren—Philip Kreuscher—Clinic for Handicapped Children.
- McLean—Postgraduate Pediatrics Conference—
- G. M. Cline—Convulsions in Infants and Children.
- A. H. Parmalee—Management of the Newborn.
- B. Markowitz—Pathological Report of an Unusual Case of Epilepsy in a Child.
- L. O. Frech—Nutrition and Physical Examination of Pre-School and School Child.
- C. C. Jones—Role of Active Immunization in Prophylaxis of Diseases of Infants.
- Scott Wilkinson—Care of the Sick Infant.
- H. Williamson—Infant Feeding.
- R. Armstrong—Endocrinology as Applied to Pediatrics.
- A. J. Fletcher—Meningitis.
- R. A. Black—Question Box.
- Warren—Postgraduate Pediatrics Conference—
- H. N. Sanford—Infant Feeding.
- B. I. Beverly—Behavior Disturbances.
- C. K. Stulik—General Treatment of Children.
- A. H. Parmalee—Care of the Newborn.
- W. L. Crawford—Allergy.
- R. H. Graham—Preventive Medicine.
- C. G. Grulee—Question Box.
- Serman Hospital, Elgin—Percy E. Hopkins—Infections of the Hand.
- Monmouth—H. M. Camp—Mechanical Consideration of Low Backache.
- Adams—Postgraduate Pediatrics Conference—
- C. K. Stulik—General Treatment of Children.
- R. H. Graham—Preventive Medicine.
- A. H. Parmalee—Care of the Newborn.
- B. I. Beverly—Behavior Disturbances.
- H. N. Sanford—Infant Feeding.
- C. G. Grulee—Question Box.
- Rock Island—Postgraduate Pediatrics Conference—
- J. Brennemann—Upper Respiratory Infections.
- B. Beverly—Behavior Disturbances.
- O. Barbour—Functional Disorders of Infancy.
- C. A. Aldrichs—Nephritis.
- G. E. Baxter—Newer Trends in Infant Feeding.
- S. Peacock—Present Status of Preventive Medicine.
- Kewanee—Illinois Tuberculosis Association—
- Harold M. Camp.
- Philip H. Kreuscher.
- LaSalle—Pediatric Postgraduate Conference—
- A. F. Abt—Facts and Fallacies in the Treatment of Sick Infants.
- J. Calvin—Behavior Disturbances.
- S. W. Gibson—Infant Feeding.
- J. W. Carey—Preventive Medicine as Related to Pediatrics.
- J. T. O'Neill—Convulsions in Infants and Children.
- Winnebago—Pediatric Postgraduate Conference—
- G. J. Mohr—Behavior Problems in Childhood.
- M. L. Blatt—Preventive Measures in Childhood.
- E. T. McEnery—Care of the Newborn.
- Julius Hess—Conditions of the Gastrointestinal Tract.
- G. E. Baxter—Care and Feeding of Infants.
- Will-Grundy—Thomas P. Foley—Medical Economics.
- Monroe—A. J. Jones—Encephalitis.
- A. M. A. Secretaries—H. M. Camp—Educational Work in Illinois.
- Woodlawn Hospital—Aaron Arkin—Diseases of the Liver and Their Differential Diagnosis.
- Will-Grundy—F. E. Senear—Role of Fungus Infections in Dermatology.
- DeKalb—C. L. Martin—Ano-Rectal Diseases.
- Peoria City—J. H. Wolfer—Surgical Management of the Jaundiced Patient.
- Will-Grundy—Clement L. Martin.

- Englewood Hospital—Aaron Arkin—Carcinoma of the Lung.
- A. P. H. A., Indianapolis—R. R. Ferguson—Medical Leadership in Health Work.
- Will-Grundy—Wilber E. Post—
- Will-Grundy—George de Tarnowsky—Differential Diagnosis of Acute Abdominal Affections.
- Champaign—J. H. Hutton—Endocrines.
- Calumet Branch—George de Tarnowsky—Acute Abdominal Affections.
- Will-Grundy—W. R. Cubbins—Intestinal Obstruction.
- Franklin—Pediatric Postgraduate Conference—
- J. R. Vonachen—
- Mark Jampolis—
- J. C. Krafft—
- Henry E. Irish—
- R. A. Black—
- H. W. Elghammer—
- Whiteside—Clinic for Handicapped Children—
- Philip Kreuscher, also a lecture on "Treatment of Foot Deformities."
- LaSalle—Nelson M. Percy, David S. Beilin—Analysis of examinations of the stomach and duodenum from the radiological and surgical viewpoint, with reference to diagnosis and treatment of ulcer and carcinoma.
- Ogle—T. B. Knox—Medical Economics.
- Ogle—C. D. Center—Medical Organization.
- Alexander—Frank Smithies—Methods Used in an ordinary practical, clinical examination of a patient who appears with the complaint of chronic indigestion.
- McHenry—James G. Carr—Diseases of the Heart.
- St. Clair—Program by the State Department of Public Health—
- Frank J. Jirka.
- J. J. McShane.
- H. J. Shaughnessy.
- R. H. Woodruff.
- Englewood Hospital—Aaron Arkin—Diseases of the Lung.
- Woodlawn Hospital—Aaron Arkin—Diseases of the Liver.
- Will-Grundy—John R. Neal—Medical Legislation.
- Southern Ill. Assoc.—Philip H. Kreuscher—Why Organized Medicine?
- Clinton, Iowa—Paul Starr—Treatment of Pernicious Anemia.
- Madison—Program by the State Department of Public Health—
- Frank J. Jirka.
- J. J. McShane.
- H. J. Shaughnessy.
- R. H. Woodruff.
- Peoria City—N. S. Davis III.—Hypertension—Coronary Disease.
- Bureau—C. M. McKenna—Diagnosis and Treatment of Diseases of the Kidney.
- Coles-Cumberland—Program by the State Department of Public Health—
- Frank J. Jirka.
- J. J. McShane.
- H. J. Shaughnessy.
- R. H. Woodruff.
- Will-Grundy—Solomon Strouse—Obesity.
- Kankakee—Program by State Department of Public Health—
- South Bend, Ind.—S. M. Feinberg—Allergy of the Respiratory Tract in Relation to Respiratory Infections.
- Will-Grundy—N. S. Davis III.—Hypertension.
- Tri-City Assoc.—H. M. Camp—Illinois Program for Care of the Indigent.
- Paris Hospital—J. H. Hutton—Clinical Application of Recent Advances in Pituitary Studies.
- Jackson—E. Lee Dorsett—Conservative Treatment of Eclampsia.
- Jackson—Hugo Deuss—Clinic for Tuberculosis Patients and Lecture on Tuberculosis.
- Will-Grundy—George W. Hall.
- Will-Grundy—Benjamin Goldberg—Tuberculosis.
- Scott, Iowa—James G. Carr—Cardio-Vascular Diseases, Cardiac Pain.
- Will-Grundy—David S. Hillis—
- Rock Island—R. H. Jaffe—Pathology of Nephritis.
- Will-Grundy—M. L. Blatt—Convulsions in Children.
- Lakeview Hospital—Aaron Arkin—Organic Health Disease.
- Calumet Branch—James G. Carr—Cardio-Vascular Diseases.
- Macon County—Ford K. Hick—Use of Oxygen in Treatment of Heart Disease.
- Will-Grundy—C. J. Lundy—Electrocardiographic Diagnosis.
- Monroe—M. Pfeifferberger—Unusual Surgical Cases.
- Jackson—L. O. Frech—Medical Economics.
- Vermilion—State Department of Public Health Program—
- Union—LeRoy H. Sloan—
- Will-Grundy—Aaron Arkin—Lobar Pneumonia, Its Diagnosis and Specific Therapy.
- Norwegian American Hospital—S. J. Taub—Management of the Asthmatic Patient.
- Scott, Iowa—C. C. Maher—Heart Disease.
- Rock Island—David S. Hillis—Obstetrics.
- Will-Grundy—Frank Smithies—Pernicious Anemia and Its Newer Aspects of Treatment.
- Kankakee—Cleveland J. White—Diseases of the Nails.
- Iroquois—Bernard Fantus—Therapy of Rheumatic Fever.
- Will-Grundy—Edmund Andrews—The Gall Bladder.
- Calumet Branch—Philip Kreuscher—Fractures of the Lower Extremities.
- Will-Grundy—C. E. Galloway—Importance of Prenatal Care.
- Livingston—Mark Jampolis—Preventive Measures in Pediatrics.
- Ill. Radiological Society—R. T. Pettit—X-Ray the Searchlight of Medicine.
- Will-Grundy—Edward J. Stieglitz—Heart Disease.
- Sangamon—C. N. Pease—Injuries to the Vertebrae During Spinal Punctures.
- Perry—R. K. Packard—Surgical Lesions of the Biliary Tract and Their Management.



Scott, Iowa—Paul B. Magnuson—Orthopedics.  
 Will-Grundy—Douglas Singer—Psychiatry.  
 Iroquois—N. J. Heckel—Diagnosis and Treatment of Prostate Trouble.  
 Henry—Moving Picture Films on Diagnostic Laboratory Procedures.  
 Kankakee—Max Thorek—Treatment of Carcinoma of the Rectum by Electro-surgery.  
 Adams—Program by the State Department of Public Health—  
 Will-Grundy—Frank F. Maple—Sterility in the Female.  
 Paris Hospital—Eugene F. Traut—Arthritis.  
 Will-Grundy—C. A. Aldrich—Nephritis in Children.  
 Fulton—R. K. Packard—Medical Economics.  
 Northwest Regional Conference—Philip Kreuscher, Harold Camp, R. K. Packard.  
 Will-Grundy—Francis L. Lederer—Otologic Problems in General Practice.  
 Sangamon—Geza deTakats—Diagnosis and Management of Peripheral Vascular Disease.  
 Scott, Iowa—Carl A. Hedblom—Surgery.  
 Will-Grundy—Leon Unger—Allergy.  
 Morgan—M. Herbert Barker—Nephritis and Its Treatment.  
 Iroquois—O. H. Crist—Obstetrics.  
 Jackson—C. L. Martin—Proctologic Problems of General Interest.  
 Creston, Iowa—S. M. Feinberg—Allergy.  
 Fulton—R. W. Keeton—Diabetes.  
 LaSalle—John Wolfer—Surgical Management of Specific Forms of Gastric and Duodenal Ulcers.  
 LaSalle—A. A. Goldsmith—The Dietetics of Intestinal Diseases in Adults.  
 LaSalle—G. P. Guibor—Glaucoma.  
 Will-Grundy—Oscar T. Schultz—Agranulocytosis.  
 Will-Grundy—Edwin H. Hirsch—Treatment of Gonorrhea.  
 Whiteside—Philip Kreuscher—Clinic for Handicapped Children.

Respectfully submitted,

Frank L. Brown, M. D., Chm.

James T. Gregory, M. D.

Percy Hopkins, M. D.,

*Scientific Service Committee.*

Dr. G. M. Cushing, Chicago: I move the adoption of this report. (Motion seconded by Dr. W. C. Blaine, Tuscola, and carried.)

#### REPORT OF MEDICAL ECONOMICS COMMITTEE

To the Members of the House of Delegates:

Your Committee started the year without any particular outline of work or goal to be attained. They met several times to decide on the proper field for their endeavor. They have at all times had a most open mind, and have endeavored to hear all sides of the questions brought up, and while they have had different opinions as to methods of attaining their objectives, they have agreed nicely as to the nature of the problem and the apparent best manner in handling the same.

Among the many subjects discussed, that of Group Hospitalization is one of the most important. There is a great difference of opinion as to the stand that the State Society should take on this question, and after listening to the advocates and opponents discuss the merits of the subject, the Committee agree that at this time the Society should recognize the importance thereof and appoint a Special Committee to study the subject and report back at the next annual meeting with a recommendation as to the attitude to be assumed by the Society. There are legal aspects to be considered, and the experience and advice of those societies which have adopted the plan should be carefully looked into. There are some who think that the plan should be enlarged to include medical as well as hospital care; others feel that this is a step toward State Medicine. A Special Committee would have time to go into all the details of the plan.

Another subject of paramount importance is that of Contract Practice and it is difficult to separate contract work of insurance companies from that of industries. Some counties have not waited for the State Society to take the lead but have already amended their Constitutions and By-Laws, so that any and all contracts entered into by any member of the County Society must be submitted to and approved by a Special Committee prior to the signing of the same. Failure to do so makes the members, so doing, subject to suspension from the Society. We believe that the State Society should recognize this problem. Closely allied with the same is fees allowed by insurance companies for services in industrial cases. The policy of demanding a cut in the regular fees by insurance companies is so common that we feel that a Liaison Committee should be appointed to contact the insurance companies when the doctor feels that the cut demanded by the carrier is excessive. A few County Societies have agreed among themselves to maintain the regular rates for industrial work and are making a great effort to keep their members in line. To the Committee this seems like an almost impossible accomplishment, but we are watching the experiment and wishing the participants the best of luck.

A problem closely allied to the above is that of work for cities, counties, and townships. Some is by contract on an annual basis, while others are on a fee basis. In either instance, the recompense is too low, even when paid, which is all too often delayed indefinitely. Several County Societies have tackled this problem with indifferent success so far. It is so mixed up with local politics that the medical profession has rarely been able to show an united front in talking to the politicians. Where the doctors stick together, they can accomplish almost anything they desire in this line. The difficulty, as always, is to accomplish the necessary cohesion. Further education of both the medical profession and the officials governing the various townships and counties is most necessary.

As to the work of the Special Committee in the care of the unemployed, you have, or will have, a special report. The Committee did not agree entirely with the contract entered into, but feel and wish to publicly ex-

press the opinion that the Committee accomplished all that was humanly possible and the plan, as finally entered into with the Illinois Emergency Relief Commission, if not the best, entered into by any State Society, including the much heralded ones of New York and New Jersey. The successful working of the plan is up to the individual physicians doing the work, and we feel sure that the executives of the Illinois Relief Commission will cooperate fully with the physicians, provided the physicians play the game squarely.

The subject of free and part-pay clinics, while of particular interest to the members of Cook County, has finally extended to the members throughout the entire State. The increased number of unemployed has proportionately increased the work of free clinics as would be expected. The part-pay clinics, such as that of the University of Chicago, have increased the volume of their work markedly, and it is of interest to know that ninety-four per cent. of the patients of this clinic pay either partially or completely for the service rendered. This fact makes it quite evident that the University is a corporation practicing medicine in active competition with its graduates. This seems very unfair and a concerted effort should be made to stop this practice. There is no objection to their admitting enough of those unable to pay anything for the services or only a nominal amount for strictly teaching purposes. Anything beyond is unfair to the medical profession, many of whom received their education at that institution. The same criticism holds true of Research Hospital of the University of Illinois.

A further limitation of the number of students admitted to medical schools should be advocated, for already there is a surplus of physicians and if the present rate of production is kept up indefinitely, there will be so many physicians that none of them will make a living.

For the past several years there has been much talk about the income of physicians, both by the profession itself, and the laity. One of our State Societies, under the directorship of a layman, published an exhaustive report, which was out of date when published and which cost between ten and fifteen thousand dollars. One of the advertising free journals published some figures a couple of years ago. These showed conclusively that the income of physicians was not in any manner as large as had always been thought, and also showed that the trend of income had been definitely downward the past few years. This same editor is now gathering additional statistics on this subject from the entire United States.

The officers of the Illinois State Medical Society and the Committee on Medical Economics thought that it would be well to get some definite information on the income of the doctors in the State of Illinois. Accordingly, after considerable thought, it was decided to select four counties of the State representing as well as possible the different kinds of industry in the State. Pulaski County was selected as a typical county of Southern Illinois which has no large city, or any manufacturing industry. Franklin County was selected as a representative of the coal mining industry. Livingston

County was selected as a representative farming community of Central Illinois without any large city and practically without manufacturing. Winnebago County was selected because it is in the northern part of the State, containing a large city, and had great amount of manufacturing. Chicago was purposely omitted from the survey in the hope that the Chicago Medical Society would see fit to make their own survey, for their problem is different from the rest of the State's, and the Chicago Medical Society would be in a much better position to handle the problem than we would. Up to date, I have not been informed of any survey under way in Chicago.

A questionnaire was sent to every physician, one hundred ninety-three in all, in each of the above mentioned counties. This asked the number of years he had been practicing medicine, the number of years in the present community, and whether he was in general practice or had a specialty. The size of the community in which he practiced was also asked. He was then asked to give the total work done, the cash income, and the net income for the years 1929, 1931, and 1933; also the amount of free work in the same years was requested. It was definitely stated that free work was the work not charged for to differentiate it from the work for which he charged but could not collect. The regular charges for house calls, office calls, and mileage were requested. The amount of salary received was asked for, reported on annual basis. The amount of graduate work in the past ten years was next and, last, there was a place for any comments the doctor might wish to make. A foot-note on the questionnaire read, "Your name will not appear on this questionnaire and there is no way that it can be traced." Only one of the returned questionnaires was signed. However, we did send the doctors of each county their questionnaires on a specially colored sheet so that we could arrange the replies according to counties, for the purpose of statistics. To the best of our knowledge we received replies from about one-half of the men. They were in more or less completion, one or two were returned in blank, but the majority were well completed and showed both a desire to cooperate and that the doctor kept his books in such a way that he could give definite information to proper authorities when necessary.

From the reports received, we have endeavored to make some charts in order to visualize for you some of the facts brought out. We separated the men in the different counties into three groups, the general practitioner, the specialist, and the salaried man. There were 43 men in general practice only, 36 gave some or all of their time to special work, and 17 were on a part- or all-time salary. Salaried men were particularly noticeable in Franklin and Winnebago Counties, industrial centers. The total number of reports received was 85, and the report today is from the figures compiled from that number. We do not feel that the figures we are to present are in any way accurate as a cross-section of the medical men of the State of Illinois. They will, however, show the trend in the different parts of the



State and will show that, after all, the conditions one place are about the same as in another.

The first thing that was done from the compiled figures was to figure a mean for the entire State for the total work, receipts, and net income. This is shown on all charts by a black line. On all charts Winnebago County is shown in red, Livingston in blue, Franklin in green, and Pulaski in brown. The years 1929, 1931, and 1933 were charted.

The first chart shows the total work done in each of the Counties in the selected years, the total receipts the same years, and finally, the net income. I want you to again notice the black line which represents the mean average for the State. You will note that in all of the Counties except Pulaski the angle of individual County is about the same as the general average. The only exception other than above stated is the total work of Livingston County, which held up to the 1929 level in 1931, only to fall precipitously in 1933 down to the general average and parallel to the mean black line. We are at a loss to interpret the fact that the work and collection in Pulaski County have been so little affected by the depression. Of course, they never were as high as the rest of the State, but, that they should have escaped the fall of the remainder, makes us question the accuracy of the figures submitted. We hope, however, that they are correct and that, at least, one part of the State is not so seriously affected as apparently the rest of the State is. You will note that the mean average of work done in 1929 was 10,360, in 1931 it was 8,611, and in 1933 it was 7,135. This was a drop of about thirty per cent. and, as before mentioned, was about the same per cent. in all counties except Pulaski. The change in receipts was more marked and the angle of fall more precipitous as the figures, 8,366 for 1929, 6,064 for 1931, and 3,945 for 1933, show. This is a fall of over fifty per cent. Again, the angle of fall is the same in all counties except Pulaski and agrees with the mean. When we come to the net income, which was defined in the questionnaire as "the total collections less the cost of practicing medicine and was not to include general living expenses," we find that it fell from 5,656 in 1929, to 3,988 in 1931, and 2,246 in 1933. This is a fall of about sixty per cent. and the angle of fall coincides in all counties except Pulaski with the mean of the State. To our mind this is the most serious of all the data compiled and should be the cause of more thought. From this net income of 2,246 in 1933, the doctor must maintain a home, keep up his insurance, educate his family, and maintain his position in the community. This takes a better financier than most of us are, and the majority of medical men cannot and are not able to do so. This is evidenced by the comments made by some of them. They say that the overhead is too high and they have been obliged to drop some of their insurance, sell some of their properties or bonds, and if they have any that are still good, they are to be congratulated, and to curtail their expense in every possible way. Most of them have some pet peeve or theory as to both the cause and the treatment. Contract practice and fee cutting come in for adverse criticism, and unless this committee is mistaken, will have to be

seriously considered by organized medicine in the near future and a definite stand taken in regard to the handling of the problem.

On Chart Number Two, we have separated the figures into three groups, the general practitioner, the specialist, and the salaried man. The mean or average for the State is shown by the black line. The individual counties are shown by the same colors as in the previous chart. Again, you will note that the angle has been the same in all counties except Pulaski. Also, that the income of both general practitioner and the specialist have gone down about the same amount and at exactly the same rate. Again, Livingston County did not conform exactly to the others when the income of general practitioners was higher in 1931 than in 1929, but it fell in 1933 until it had assumed its proper position compared with the average of the State. In 1933, the work of the specialist in Livingston County did not show the average drop. This seems a little odd for the consensus of opinion is that farmers and people in farming communities are harder hit than those in other parts of the State. The reports of the doctors from Livingston County seem to refute this idea and we hope that they are correct. The salaried men have been affected much less than those engaged in private practice as shown by the third portion of the chart. While the average cash income of doctors in the State has diminished fifty per cent., the average cut of those men on salary has been about fifteen per cent. But in spite of this, they feel that they are being underpaid and probably they are, as most of us who have worked with large corporations and insurance companies have found out. However, in their cases this is not a new development, and certainly is not more serious than it has been for the past many years. As there are no salaried men in Pulaski County, there is no brown line on this chart.

On Chart Number Three, we have shown graphically the change in the volume of free work reported in the different counties for the years 1929, 1931, and 1933. This is the most inaccurate of all the report in our opinion, due to the fact that few of us know at this time where to classify a large per cent. of the work for which we are not paid. A few years ago any man who had been in a town five years had a very accurate classification of who was good and who was not; but with the changes in the past four years occurring with the rapidity they now do, it is absolutely impossible to know just where to classify a man as a credit risk. This is true not only in the practice of medicine but in all businesses where there is an extension of credit. Accordingly, the amount may be much higher than given in our graph, but there is no question that it is at least as high as reported. The larger the community and the more industry present, the higher the amount of recorded free work. This is shown by Winnebago leading, followed by Franklin, Livingston, and Pulaski in the order named. Again one must note that the least change is in Pulaski County.

We must again mention the fact that out of the 85 replies to the questionnaires sent out, 17 of the doctors are on part- or all-time salary. This is just twenty per



cent. We feel that this will be somewhat of a surprise to the majority of the profession who have always thought that practically all of the medical profession were free from all interference from the outside in the running of their business. Unquestionably, those of us who fear the spectre of STATE Medicine will find here food for thought. If already one-fifth of the profession is on salary, it is not a long step until one-half of the doctors will be in the same boat and from there it will be easy to complete the transition. While we do not wish to be alarmists, it seems that the younger men have been obliged to take on salaried jobs in order to keep going during these times and it will be hard to counteract this tendency.

There has been a general impression that the majority of doctors made a lot of money and were all rich. Of course, those of us in the business for any length of time knew that this was untrue, at least as far as the type of practice we were in, although we may have had some erroneous ideas about those engaged in other specialties. So we have gone over the reports and find that out of the 85 men reporting, only three had a cash income over \$20,000.00 in 1929, two of them general practitioners and one a specialist; in 1931, only one, a specialist, had an income of over \$20,000.00; in 1933, none had a cash income of \$20,000.00 or over. In 1929, there were 23 men with a gross income of \$10,000.00 or over; this was divided, 10 general practitioners and 12 specialists; in 1931, there were four general practitioners and seven specialists with an income of \$10,000.00 or over; in 1933, three general practitioners and four specialists had an income of \$10,000.00 or over. These figures refute any such ideas which may prevail among the laity. Of special interest is the fact that it is impossible to explain why the relation of practitioners and specialists remain so constant in the high figure brackets. A talk with the majority of men in general practice will soon convince one that they are sure that the specialists make most of the money, while they, the poor general practitioners, are the goats. These figures show that it depends on the individual more than the type of practice he is in. Taking the figures for 1933, which show that only seven out of the 85 reporting, had an income of \$10,000.00, a percentage of about twelve according to our calculations, and then figure that from that amount of money, a man must run his business, and the higher the income the greater the overhead, as well as living, and you can see that there is very little chance for a doctor to make enough to retire at the age of 70, let alone get rich, even if he made only good investments and never had his money tied up in a closed bank, bought farms or first mortgage real estate bonds. Many men mentioned the fact that the cost of practicing medicine was too high and that the overhead must be cut down. It is difficult to do this for the cost of rent, telephone, drugs, and running an automobile have not gone down much in the past four years, the drop having been in the cash collected and the total volume of work done. There is nothing the doctors can do about the latter as they are but the reflection of general depression through which

we have been struggling the past four years and from which we hope to emerge in the near future.

A review of the report on postgraduate work in the past ten years shows that 57 of the 85 have done absolutely no postgraduate work other than attend an occasional medical meeting, usually the state meeting. Twenty men have taken work lasting from one to six months, frequently in homeopathic doses, such as the Cook County Clinics. This has been about equally divided between the general practitioners and those from their group who were emerging into a specialty of some kind. Four men had taken a year or over of special work. There were two each of specialists and general practitioners. In the two-year group were three men, one a pathologist, one a specialist, and the third a radiologist. This shows that the average man is not giving much time to postgraduate work. While postgraduate work is not as necessary as it was some years ago with the high grade of medical journals and the nature and frequency of meeting of the various societies, there is a stimulation that goes with the contact with other men at postgraduate work which is invaluable. With the progress in medicine now being made and which has been made in the past ten years, a man must have time to read extensively and a retentive memory to glean all the good grain in medical literature of the present day and it is well nigh impossible to assimilate the information heard at any one of the many society meetings held so frequently. It seems to us that there is no substitute for an occasional course of study at some medical center if for no other reason than the stimulating effect thereof and the renewed interest which it arouses in the participant. Those of us outside of the big medical centers need it more than those of you in Chicago and St. Louis, but all can stand some of it.

The charges for services vary some with the different counties. The average for the four counties is about \$1.50 for office visits, \$2.50 for house calls, and 75 cents for mileage on country calls one way. In Winnebago County, the average is the highest with \$2.00 for office and \$3.00 for house calls. In the 54 reports that came in, only three men were below this average. When it came to mileage, there was considerable difference, with fifteen of the men below the average of \$1.00, one of them as low as 20 cents. In Livingston County, the average for office calls was \$1.50, with seven below, and five above; for house calls the average was \$2.50, with nine below and one above that figure; mileage was \$1.00 with only one man charging below that figure. In Franklin County, the average for office visits was \$1.50, with two above that figure; the average for house calls was \$2.50, with one above and two below that figure; mileage was \$1.00 with two below that figure. In Pulaski County, the average for office calls was \$1.00, and \$2.00 for house calls, with 50 cents per mile with one exception at \$1.00. Unquestionably, the charges for services should be decided by the members of the local County Society, but once they have been agreed upon, it is the least that the members can do to conform to the schedule. Failure to do so, results in misunderstanding.

ings, which often are serious. Particularly at this time the medical profession must give to the public the appearance of solidarity, and there is no easier method for them to check up on us than by the way we keep to the schedule. Failure to do so, is soon known all over town and rarely does any one good and is terrible for the morale of the profession in that locality.

A few of the comments are of interest. The majority who made comments appear quite disillusioned as to the possibility of accumulating anything in a monetary way. Many blame this on too much free work, others on too low pay by the counties and townships. Some think there are too many clinics and too many doctors. The younger men seem especially bitter as to the opportunities of medicine. All in all, there seems to be a growing discontent among the members of the profession and it behooves the medical societies to make a great effort to meet the complaints that are voiced. It seems as though it is imperative that every county society must have one or two meetings a year on the subject of Economics and give the men with grievances a chance to air them. From such discussions, let us hope that some constructive ideas will evolve which will aid us all. This discontent is a fertile field for the agitators of State Medicine and should be recognized and met promptly.

A. The replies to our questionnaire show that the income of the physicians of the State has been cut almost in half in the past four years. The result has been in most cases that the net income has become so small that it is difficult for a large percentage of physicians to continue to live in their accustomed manner. This has resulted in a careful appraisal of the cause of the same. The result is that the thinking men are wondering as to the future of medicine as a profession and are demanding that the economic side be no longer ignored.

Some societies are meeting the problem by active control of the different subjects as they arise. We feel that most of our problems can be controlled by the societies themselves if only frank admission of the cause is made, followed by the society, as individuals as well as collectively, sticking together and demanding their just rights. This necessitates definite plans, rules and regulations with enough nerve by the local societies to enforce the same against any of their members who refuse to play the game squarely. No man is bigger than organized medicine. State societies must lead in the work.

Your Committee regret that they have not accomplished more during the past year. However, if we have started something which will result in more general thinking by medical men on the economic side of medicine, we feel that the ground work has been laid for more definite accomplishments in the years to come.

B. There are so many problems of this nature that no small committee, such as this, can do more than stimulate the individual men of the Society. This we hope we are doing. We wish to thank all the doctors of the State who have cooperated with us in our work the past year and trust that you will continue to help the new Committee, even more enthusiastically than this year. The future of medicine remains to a large extent in the hands of the united thinking medical men. United

we can accomplish almost anything. We must serve unselfishly as much as lies in our ability and time. This is a responsibility that cannot be ignored if the practice of medicine is to remain an individual profession, respected by all, and sufficiently recompensed to attract the high class of men who have brought the medical profession to its present high standing in this as well as other countries.

Respectfully submitted,

E. S. Hamilton, M. D. Chairman,  
I. H. Neece, M. D.,  
E. H. Ochsner, M. D.,  
C. E. Wilkinson, M. D.,  
*Medical Economics Committee.*

Dr. E. S. Hamilton: This committee has really tried to do some work this year, and we have most of it in this report. With your kind permission I wish to tell about a questionnaire we sent out to four counties representing typical counties in Illinois. We sent out 193 questionnaires and received 86 replies. I have taken the time to put all these figures in different forms and make out charts. I have three charts worked out. I make no apology for bringing up the question of medical economics. It is the most important thing there is before the medical profession today. Any man who tells you he is not interested in medical economics is either a liar or a fool.

These figures are taken purely from these reports which I have on file. There are many more things that I would appreciate your taking the time to read. I would like to have you especially note the last two paragraphs of the report, marked A. and B. on the printed report.

Dr. Hamilton: I move the adoption of this report. (Motion seconded by Dr. R. L. Green, Peoria, and carried.)

#### REPORT OF VETERANS' SERVICE COMMITTEE

To the Members of the House of Delegates:

Considering the favorable legislative changes of March 20, 1933, in the administration of Veterans' Affairs and also certain rulings made by the Administrator of Veterans' Affairs, your Committee submits a rather short report.

Much, however, has been accomplished in a medical organization way in the American Legion. The present Department Surgeon has succeeded in greatly increasing the number of members in the Medical Commission. It is understood that other states are considering the formation of such commissions within the Legion. We believe that with a large number of medical men in Veterans' organizations cooperating with the Veterans'



Service Committees in medical societies, much can be done to prevent the revising of legislation inimical to organized medicine.

Your Committee and the medical commission have not concerned themselves with Veterans' Legislation except in so far as medical care and hospitalization of Veterans affects organized medicine.

Hospitalization is afforded all war veterans with honorable discharge who require hospital treatment and have service connected disabilities. The same treatment is also accorded all veterans who are destitute and unable to pay. Neuro-psychiatric, tubercular, and cancer cases are furnished Government Hospitalization.

At the last state convention of the American Legion, a resolution was introduced in the rehabilitation committee, recommending that all acute critically ill cases be treated in the community in which the emergency arises, by a physician of the Veteran's choice, in home or hospital, the bill to be paid by the Federal Government upon presentation of bill by doctor in charge. This resolution was accepted by the rehabilitation committee and will be recommended for passage in open convention next fall.

Your committee believes that if we are on the alert we will go a long way toward preventing a vast federal system of medical care which would be dangerous to the future of medicine and proper medical care.

Respectfully submitted,

F. O. Fredrickson, M. D., Chm.,  
H. J. Way, M. D.,  
E. P. Coleman, M. D.,  
F. G. Norbury, M. D.,  
T. B. Williamson, M. D.,  
J. S. Nagel, M. D.,

*Veterans' Service Committee.*

Dr. Fredrickson: I have only one thing to add, that the membership of the Medical Commission within the American Legion, Department of Illinois has been increased from 303 to over 500. I move the acceptance of this report. (Motion seconded by Dr. C. C. Rentfro, Chicago, and carried.)

#### REPORT OF THE EDITOR

To the Members of the House of Delegates:

The ILLINOIS MEDICAL JOURNAL was established in 1899. From 1899 until the present day, a comparatively short time in history, the world has witnessed a scientific, industrial and social development so gigantic in its proportions as to be almost incomprehensible; medical discoveries have increased by leaps and bounds and the general economic conditions surrounding medical affairs have undergone a revolution.

The automobile has been invented and perfected. Electricity has been harnessed as a servant of man in countless ways. The telegraph and the telephone have reached the highest point of development, and as a climax man has completed his conquest of time and space

by means of radio and airplane. All this has had a profound effect in human life and conditions of living.

The responsibility and the burden which these vast changes have placed upon medical practice are tremendous. It becomes at once apparent that only those medical periodicals which meet these changing responsibilities squarely and adequately can hope to survive and to grow in popularity and to retain the confidence of the profession.

A new and complex era of marvelous change in perspective is dawning, *not* the least important of these forces involved is an insidious propaganda aimed at arousing public sentiment in favor of a revolution in our American method of medical practice.

A little reflection convinces one that our recent medical history shows many obvious trends toward the socialization of medicine in this country—enlarging dispensary services, enormous facilities for the hospitalization of war veterans, the popularity of group practice, and the expanding functions of public health service. The forces directed at the socialization of health in this country are deep rooted and despite our pleasant complacency promise to grow and continually reassert themselves. The cost of public service generally has trebled itself during the last twenty years and both rapidly and surely the government is assuming more and more the work of the private physician.

It is not difficult to imagine the results should some of the fantastic programs which have been suggested to "revolutionize" medical practice be adopted. Under those programs, initiative and enterprise in medicine would be suffocated, or chilled to such a degree that retrogression would promptly supplant that progression which has ever been the life blood of the medical profession.

The editorial policy of the ILLINOIS MEDICAL JOURNAL has busied itself with comment upon the economic tangent in the life of the physician and the future of the profession because the scientific side of the profession has been so capably cared for through the masterly papers of actual research and experience that are contributed to the Journal from all over the country by men who know well what they are writing about. Today the Journal is more widely read and more frequently quoted than during any other period in its history.

Economic developments in the twelve months just ended indubitably impress upon the minds of the most conservative stand-patters in the profession the fact that the crusades waged by this journal editorially for the past twenty years are both basically and prophetically correct and scientifically exact.

So what was once a lone trail and a rough one is rapidly becoming a broad highway as conservative journal after conservative journal is whipping round to follow in our wake. Even a large percentage of the lay press has awakened to the fact that medicine practiced by doctors is a better asset to the country than medicine bungled by lay dictators.

"Eternal vigilance is the price of liberty." Aroused to the menace that confronts us, both profession and general public can be depended upon to band together



to preserve that hallowed science of life,—ethical medicine. Not for self laudation but from a heart humble with thanksgiving at the prospect of redemption, the editor makes bold to state that the most gratifying item in this yearly accounting is that the tocsin sounded in our columns has not been sounded in vain. All of the evil inherent in lay domination or socialistic contamination of the mother science and that has lurked behind deceitful masks of philanthropy, and humanitarianism is being dragged into the light of day. For this has your editor labored and sweat. If ever the millennium comes to medicine it will be upon that day when the physician himself gets a quarter of as much of a show as does his patient, and when the mother science itself is returned securely to the pedestal from which lay-vanity and lay-funds have wrested this proud handmaid of both God and nature.

I have said the "dawn is breaking." That does not mean that the day is here, but it emphasizes the fact that the medical profession must be up and doing and on the job at daybreak just as hundreds of us were years ago when we were boys on the farm with heads full of dreams and hearts full of hope. We need to go full strength at our tasks just as we all turned to and helped get the hay in when cloudbursts threatened us. Organized effort, each man with his hand and his head and his heart on the job, is the need of the hour. Join the city, the county and the state society, boys and let us weed out forever the vicious nightshade of paternalism, the insidious miasma of so-called "Federal relief" whether for maternity or other sentimental inefficiencies; and the endowed or politically controlled lay domination of the personality, the practice, the ethics and the economics of the profession.

No matter how flat broke we are as individuals, there is no doubt that the profession itself is looking up, in point of economics. Since medical men are bending their energies to find some way that is fair, that is scientific and that is practical, to cut down the cost of medical education; to restore to his rightful and indispensable place, the old fashioned "family physician"; to remove from competition with practicing physicians the very institutions from which their degrees were received; to eliminate corporations and lay individuals from the domination of the profession and from its practice and above all take the practice of medicine out of any federal, state or communal bureaucracy. Such action is what the ILLINOIS MEDICAL JOURNAL has crusaded for during the last twenty years.

Speaking briefly, some of the many evils against which the ILLINOIS MEDICAL JOURNAL has crusaded during the past year are:

1. Attempts of Congress and State legislatures to dictate therapeutic procedures. Diagnosis, dosage and demand should be regulated by scientific judgment in all its flexibility rather than by inflexible, legislative statute.
2. Attempts by lay organizations and individuals, and by capitalistic foundations to effect arbitrary control and supervision of disease, and of the sick and ailing to the elimination of the physician as an individual, or

as a unit in a purely scientific society, such as a city or county or state medical society or its divisional.

3. Attempts at fiat legislation that interfere in any way with the proper practice of medicine.

4. Attempts of politicians—misguided, ignorant or malicious—as the tools of cults, quacks and charlatans, to write upon the statute books of any state, county or city, legislation that will permit any impostor to enter the practice of medicine or in any way to assume care of the sick or ailing.

5. Attempts by corporations to act as intermediaries between physician and patient and thus eliminate the benefits to the patient of direct contact with medical advisors.

6. Attempts through various agencies to take from the hands of the family physician, aided if necessary by a local specialist, the requisite periodic health examination.

7. Attempts to effect an indirect medical service anywhere and in any way through a third party.

8. Attempts to install an over-centralization of medical authority with all the dangers and destructive influences attendant upon such non-American bureaucracy.

9. Attempts to create a federal despotism or a modified soviet with socialization of medicine the touchstone for this calamity.

The causes for which the Journal is fighting:

1. Defense of the medical profession from emotional villification from misguided individuals in the profession and from ignorant individuals of the general public.

2. Protection of the profession from misleading opinions engendered in the public mind through unfair, untruthful, and bombastic newspaper publicity attained on the part of various members of the profession from time to time.

3. Restoration of the rank and ranks of the family physician, that fundamental factor in the practice of medicine, and that has unfortunately suffered temporary displacement through the enthusiastic if not altogether balanced rush for specialization that has, through no precise fault of the doctors themselves, permitted a specious foothold for cults in the chasm between the service of the specialists and the average service afforded by the average modern general practitioners.

4. Realization on the part of both mature doctor, recent graduate and undergraduate student that the general public is demanding increasingly a punctilious service for those comparatively trivial ills that comprise the bulk of human ailments and that proffer fertile mediums for the increase of charlatanism.

At the risk of being considered an incurable optimist, let it be stated that prospects were never so bright. Awakening of the professional conscience to the wrongs that have been perpetrated against individual members and the mother science augurs that action that will bring remedy. "Diagnosis is half the cure."

Respectfully submitted,

Charles J. Whalen, M. D., Editor.

Dr. C. J. Whalen: I move that the report be

adopted. (Motion seconded by Dr. T. H. Culhane, Rockford, and carried.)

### REPORT OF THE HISTORIAN

To the Members of the House of Delegates:

Because of an enforced absence from the State your historian had no report for the year 1933 and the report of 1934 is somewhat curtailed.

There is a definite, growing interest in the historical aspects of medicine on the part of the profession of Illinois. This is evidenced by the activities of the Chicago Society of Medical History and the inclusion of a number of historical papers and discussions in the programs of County societies. Some museum material has been obtained and there is the beginning of an excellent collection on early Illinois medicine housed in the new quarters of the Chicago Historical Society. This material has been gathered largely through the efforts of Dr. George H. Weaver of Chicago.

After considerable investigation, a number of personal visits and the cooperation of local citizens, the site of the first medical school in Illinois—the Franklin Medical College—at St. Charles, Illinois, has been determined. Arrangements have been made for the erection of a bronze marker on this site. Funds for the marker have been subscribed and the unveiling exercises planned for will be in charge of a citizens' committee of St. Charles, Illinois. In this connection the assistance of Miss Alice L. Davis is acknowledged with much appreciation.

This St. Charles school antedated the Illinois College Medical School at Jacksonville by one year. The St. Charles school inaugurated medical instruction in 1842 and continued until 1849 when it was closed because of an anatomical riot. This school was organized by Dr. George W. Richards, and the faculty consisted of Richards, who was practicing medicine in St. Charles, and who had earlier taken private pupils; Dr. John Thomas, chemistry and pharmacy; Dr. John De La Mater, surgery; Dr. Edward Mead, materia medica; Dr. Nicholas Hard, obstetrics and diseases of women and children, and Dr. Samuel Denton, theory and practice of medicine. Weaver says\* that Richard and Hard were active teachers until the school was suspended in 1849. Most of these men were colorful characters. Richards, professor of anatomy, was wounded in the so-called anatomical riot that occurred April 19, 1849. A rifle bullet passed through the door of the house striking Dr. Richards and injuring the right brachial plexus; his right arm was thereafter paralyzed. A student by the name of John Rood died as a result of wounds received in the mob attack. Weaver (loc. cit.) says that it was the opening of the St. Charles school that forced Dr. Daniel Brainard to open Rush Medical School before he was ready.

Your historian will be glad to assist county societies to secure speakers on medical historical topics and will

\*Weaver, George H., "Beginnings of Medical Education in and near Chicago" 1925.

be most grateful for early printed material, medical works, pamphlets, etc., examples of early instruments and historical anecdotes and data relative to Illinois physicians.

The generous response of numerous physicians throughout the state to inquiries is gratefully acknowledged.

Respectfully submitted,

Irving S. Cutter, M. D., Historian.

Dr. W. H. Harker, Chicago: I move that the report be accepted. (Motion seconded by Dr. L. E. Day, Chicago, and carried.)

The President: I wish at this time to ask Dr. G. Henry Mundt to present Dr. Walter S. Bierring.

Dr. Mundt: The distinct honor I have is in presenting my good friend, Dr. Walter S. Bierring, Des Moines, President-Elect of the American Medical Association.

Dr. Bierring: I would again like to have the opportunity to express to this particular body my appreciation for being here. I still have very happy recollections of things that happened about one year ago in Milwaukee which will always make me feel that I have a great many friends here among my colleagues in Illinois. I am glad that I have this opportunity of expressing my appreciation. I have listened to the report of the Committee on Medical Economics which is rightly said to be of great importance. You may think of this as a passing fancy, but it is going to get at the very roots of our old traditions and unless we endeavor to put our own house in order and endeavor to solve our own problems somebody else will try to solve them for us. I like to see the interest you have in these important problems. I again express my appreciation on hearing these words.

The President: The next order of business is the appointment of the Resolutions Committee. I shall appoint on that Committee Dr. J. S. Templeton, Pinckneyville, Chairman, Dr. Charles B. Reed, Chicago, and Dr. Walter Stevenson, Quincy. The introduction of resolutions is now in order.

Dr. Guy M. Cushing, Chicago: I wish to introduce the following resolution:

*Resolution Opposing the Exploitation of Drugs, Remedies, Etc. Over the Radio*

WHEREAS, the health of the citizens of the United States constitutes the greatest asset of the Nation, and the responsibility of conserving



the health of the citizens and restoring them to health in times of illness reposes in the medical profession, and,

WHEREAS, this responsibility is very great, as is evidenced by the high educational and professional standards which physicians are required to meet in the various states of the Union before being permitted to diagnose disease and treat the sick, and,

WHEREAS, satisfactory and safe service of this type can only be rendered after a long and careful study of the causes and symptoms of disease, and that these causes and symptoms can only be determined after an interview with and physical examination of the patient, and,

WHEREAS, no rational or safe treatment can be decided upon and carried out, under circumstances other than those above set forth without danger to the life or health of the patient, and,

WHEREAS, for many months past the Radio Broadcasting Companies of the United States have through their various broadcasting stations permitted the exploitation of many drugs, preparations, patent medicines and so-called cures, to the radio audiences of America, and,

WHEREAS, it has been well established that some of the drugs, preparations and patent medicines so exploited are dangerous in the hands of the layman; others are of doubtful value, and in practically all instances their value for the relief of the symptoms and conditions for which recommended have been overstated and are misleading to the public, and,

WHEREAS, the symptoms and conditions for which these drugs, preparations and patent medicines are recommended may be, and frequently are, indications of serious conditions calling for careful study on the part of a well qualified physician in order that a correct diagnosis may be made, and the proper treatment instituted before the disease reaches an advanced stage, and,

WHEREAS, Radio Broadcasting is under the control of the Federal Radio Commission, and the radio is being used to broadcast nonsupportable claims and statements regarding a large number of drugs and preparations for the treatment of human ailments;

*Therefore, be it resolved*, that the Illinois State Medical Society is opposed to the advertising, recommending or in any way exploiting over the radio any preparations, remedies, medi-

cines or appliances for the treatment of human ailments; and that a copy of these resolutions be forwarded to the Federal Radio Commission with a request that in the interest of the health of the citizens of the United States they exercise their authority to discontinue such advertising over the radio.

*Be it further resolved*, that physicians use such influence with their cooperation in sending protests to the Federal Radio Commission and to Broadcasting Stations against misleading and unwarranted medical advertising.

Dr. Frank P. Hammond, Chicago: I wish to introduce the following resolution:

#### *Status of Physical Therapy in Illinois*

WHEREAS, the Illinois State Medical Society has not surveyed the status of physical therapy in this state and has no regulations to aid in the employment of this form of therapy by its members and the hospitals in Illinois, also to prevent its use by unlicensed practitioners and other irregulars, and

WHEREAS, this Society has not used to the full advantage the opportunities for the education of practitioners in the proper use of physical therapy, and

WHEREAS, this Society now has no committee to which it can refer firms desiring to exhibit physical therapy apparatus to prevent the exhibition at our Society meetings of fake and quack apparatus,

*Therefore be it resolved*, that the Council of the Illinois State Medical Society appoint a Committee on Physical Therapy to consider the above problems.

Dr. P. B. Blodgett, Chicago Heights: I wish to introduce the following resolution:

#### *Reduction in Dues*

*Resolved*, that the dues of the Illinois State Medical Society be reduced from seven dollars (\$7.00) a year to five dollars (\$5.00) per year.

Dr. Walter Stevenson, Quincy: I wish to present the following resolution:

#### *Amendment to Constitution to Provide for Successor to President-Elect*

Inasmuch as the Constitution and By-Laws of the Society do not provide means to fill a vacancy to the office of President-Elect,

*Be it resolved*, that Chapter vii. Section 2 of



the By-Laws of this Society be amended as follows:

"and in the event of the death, resignation or removal of the President-Elect, the Chairman of the Council shall succeed him."

The Secretary: At the meeting of the Council last January the President and the Secretary of the Montgomery County Medical Society visited the Council and asked the Council to consider a matter which really must be settled by the House of Delegates. Montgomery County is in the Seventh Councilor District though it is directly south of Sangamon County. The members of Montgomery County present a petition to this House of Delegates to be permitted to move from the Seventh to the Fifth Councilor District. I shall read the petition.

*Transfer of Montgomery County Medical Society From the Seventh to the Fifth Councilor District*

We, the undersigned members of the Montgomery County Medical Society, hereby petition the Illinois State Medical Society, to transfer the Montgomery County Medical Society from the Seventh to the Fifth Councilor District. We believe that this change is in the interest of medical organization.

Respectfully submitted,

C. H. Sihler, Litchfield,  
Z. O. Kimball, Hillsboro,  
Geo. A. Telfer, Hillsboro,  
C. H. Zoller, Litchfield,  
D. J. Zerbolio, Benld,  
G. A. Sihler, Jr., Litchfield,  
L. S. Brown, Hillsboro,  
H. A. Seymour, Hillsboro,  
W. O. Fisk, Fillmore,  
W. C. Zulauf, Raymond,  
C. R. Driskell, Raymond,  
Lee G. Allen, Litchfield,  
Ross A. Griswold, Litchfield,  
G. A. Sihler, Litchfield,  
H. F. Bennett, Litchfield.

I think that Dr. Bennett, the Secretary of Montgomery County, as well as the Councilors for these two districts should have an opportunity to speak on the subject.

The President: I shall be glad to give the privilege of the floor to Dr. Bennett of Litchfield.

Dr. Bennett: There has been a sentiment in our society for a number of years to transfer to the Fifth Councilor District. We presented this petition to the Council in January.

Dr. S. E. Munson, Springfield: At the meet-

ing of the Council in January this petition was brought before us. Montgomery County is directly south of here and its members attend our society meetings more frequently than elsewhere. If it is agreeable to Dr. Neece, the Councilor of the Seventh District, we will be very glad to welcome the Montgomery County Society. As you remember a year ago two counties were taken away from the Fifth District which is now smaller than any other district. We would welcome a few more members.

Dr. I. H. Neece, Decatur: For some time Montgomery County has wanted to join with the Fifth Councilor District because of their relation and their close proximity to Springfield. While we dislike very much to give them up from our District I feel that they should be allowed to make this change.

The President: We will allow this petition to be introduced as a resolution and be turned over to the Resolutions Committee to report on Thursday morning.

We now come to unfinished business.

The Secretary: I have received from Dr. William C. Woodward, Bureau of Legal Medicine and Legislation of the American Medical Association, the following letter which should be referred to the Resolutions Committee:

"The Illinois State Medical Society meets, I understand, May 15. The Illinois Legislature meets in regular session, January, 1935.

I wonder if it might not be wise for the Illinois State Medical Society to take appropriate action with respect to the legislation named below? Possibly the Society will want to sponsor such legislation, either with or without amendment, and to procure its introduction into the Legislature. On the other hand, it may want to oppose such legislation if someone else proposes it. By initiating studies of these matters now the Society will be better prepared in January next. The measures referred to are as follows:

*The Proposed Uniform State Narcotic Act.*—The bill for this act was drafted by the National Conference of Commissioners on Uniform State Laws. It has been approved by the American Bar Association and the American Medical Association. Several states have adopted it already.

*The State Caustic Poison Act.*—The draft of the bill for this act was prepared in this office, at the instance of a Committee on Caustic

Poisons, of the Section on Laryngology of the American Medical Association. This bill has been enacted in a number of states.

*A Medical Lien Act.*—This bill has not been formally approved by any proper agency of the American Medical Association. It was prepared in this office, however, to satisfy inquiries received from a number of state medical associations for information concerning legislation of this character. The extent to which such legislation has been adopted is shown in the accompanying analysis of it.

Copies of all of the three bills referred to above accompany this letter."

(Signed) William C. Woodward.

The Secretary: I have a letter from the Secretary of the American Medical Association relative to electing a delegate from component societies of the American Medical Society to the American Medical Association's Annual Meeting. This year we have delegates who were elected two years ago when our meeting was held after the meeting of the American Medical Association at New Orleans. Those delegates have been seated in the House of Delegates of the American Medical Association for only one year. Owing to the fact that many state medical societies meet within two weeks or possibly three weeks of the time of the American Medical Association it is impossible to get the names of all the elected delegates for that session in the Hand Book. The delegates who were elected two years ago for two succeeding sessions of the American Medical Association are finding their term expiring this week having only served one year. One way that this can be alleviated, according to the Secretary of the American Medical Association, is if the State Medical Society thinks that it is advisable by electing delegates for the next two sessions. I think this is a matter that should be given some consideration and be brought up for action on Thursday morning.

Dr. T. B. Williamson, Mount Vernon: I move that we adjourn until Thursday morning at 8:30 o'clock (Motion seconded and carried.)

#### SECONDED SESSION

*Thursday Morning, May 17, 1934*

The Thursday morning session was called to order at 8:45 A. M. by the President, Dr. Philip H. Kreuscher, Chicago.

The President: The first order of business will be the report of the Credentials Committee.

Dr. E. P. Coleman, Canton: In addition to the number seated on Tuesday, two alternates have been seated from Chicago and two additional delegates from downstate.

The President: If there is no objection we will consider the report of the Credentials Committee accepted. The next order of business is the roll call.

The Secretary called the roll and reported that a quorum was present, 45 delegates from down state, 29, Chicago Medical Society, and 13 members of the Council a total of 87.

Dr. C. B. Ripley, Galesburg: I move that these be made the official delegates of this House. (Motion seconded by Dr. C. H. Phifer, Chicago, and carried).

The President: The next order of business is the reading of the minutes of the previous session. Unless there is objection we will consider the minutes as having been read.

The next order of business is the election of officers; first, the election of a President-Elect to fill the unexpired term of Dr. Charles D. Center. Nominations are in order.

Dr. J. S. Templeton, Pinckneyville: I wish to place in nomination the name of Dr. Charles S. Skaggs of East St. Louis. (Seconded.)

Dr. Mather Pfeiffenberger, Alton: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Skaggs. (Motion seconded by Dr. Charles H. Phifer, Chicago, and carried).

The ballot was cast and the President declared Dr. Skaggs elected.

The President: Nominations for President-Elect are in order.

Dr. George W. Post, Chicago: I am pleased to present the name of Dr. Charles B. Reed, Chicago. (Motion seconded by Dr. Guy M. Cushing, Chicago).

Dr. C. E. Wilkinson, Danville: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Reed. (Motion seconded by Dr. E. P. Sloan, Bloomington, and carried).

The Secretary cast the ballot and the President declared Dr. Reed elected.

The President: Nominations for First Vice-President are in order.

Dr. S. E. Munson, Springfield: I wish to nominate Dr. Arthur E. Walters, Springfield, General Chairman of this meeting. (Motion seconded by Dr. E. P. Sloan, Bloomington, and carried).

Dr. Mather Pfeifferberger, Alton: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Walters. (Motion seconded by Dr. E. P. Sloan, Bloomington, and carried).

The Secretary cast the ballot and the President declared Dr. Walters elected.

The President: Nominations for second Vice-President are in order.

Dr. E. E. Davis, Avon: I wish to place in nomination the name of Dr. Elizabeth S. Miner of Macomb. (Seconded by Dr. J. W. Long, Robinson).

Dr. C. B. Ripley, Galesburg: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Miner. (Seconded by Dr. C. E. Wilkinson, Danville, and carried).

The Secretary cast the ballot and the President declared Dr. Miner elected.

The President: Nominations for Secretary are in order.

Dr. E. P. Coleman, Canton: I wish to place in nomination the name of Dr. Harold M. Camp, Monmouth, to succeed himself. (Seconded by Dr. J. S. Nagel, Chicago).

Dr. E. E. Davis, Avon: I move that the nominations be closed and the President cast the affirmative ballot for Dr. Camp. (Seconded by Dr. E. P. Sloan, Bloomington, and carried).

The President cast the ballot and declared Dr. Camp elected.

The President: Nominations for Treasurer are in order.

Dr. Walter E. Kittler, Rochelle: I wish to place in nomination the name of Dr. A. J. Markley, Belvidere, to succeed himself. (Motion seconded by Dr. R. L. Green, Peoria).

Dr. F. O. Frederickson, Chicago: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Markley. (Motion seconded by Dr. Guy M. Cushing, Chicago, and carried).

The Secretary cast the ballot and the President declared Dr. Markley elected.

The President: Nominations for Councilor for the Third District are in order.

Dr. Robert H. Hayes, Chicago: It gives me great pleasure to nominate Dr. J. S. Nagel, Chicago, to succeed himself. (Seconded by Dr. E. W. Mueller, Chicago).

Dr. C. E. Wilkinson, Danville: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Nagel. (Seconded by Dr. E. B. Fowler, Evanston, and carried).

The Secretary cast the ballot and the President declared Dr. Nagel elected.

The President: Nominations for Councilor of the Fourth District.

Dr. E. E. Davis, Avon: I wish to nominate Dr. E. P. Coleman, Canton, to succeed himself. (Seconded by Dr. C. E. Wilkinson, Danville).

Dr. C. B. Ripley, Galesburg: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Coleman. (Motion seconded by Dr. Pfeifferberger and carried).

The Secretary cast the ballot and the President declared Dr. Coleman elected.

The President: Councilor of the Fifth District.

Dr. E. P. Sloan, Bloomington: I wish to place in nomination the name of Dr. S. E. Munson, Springfield, to succeed himself. (Seconded by Dr. C. E. Humiston, Chicago).

Dr. C. E. Wilkinson, Danville: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Munson. (Seconded by Dr. E. G. Hamilton, Kankakee, and carried).

The Secretary cast the ballot and the President declared Dr. Munson elected.

The President: Councilor of the Seventh District.

Dr. Lee N. Frech, Decatur: I wish to place in nomination the name of Dr. I. H. Neece, Decatur, to succeed himself. (Motion seconded by Dr. W. E. Burgett, Bement).

Dr. Charles H. Phifer, Chicago: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Neece. (Motion seconded by Dr. F. O. Frederickson, Chicago, and carried).

The Secretary cast the ballot and the President declared Dr. Neece elected.

The President: Nominations for Councilor of the Eighth District are in order.



Dr. O. H. Crist, Danville: I wish to place in nomination the name of Dr. C. E. Wilkinson, Danville, to succeed himself. (Seconded by Dr. C. F. Newcomb, Champaign).

Dr. E. G. Hamilton, Kankakee: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Wilkinson. (Seconded by Dr. Victor Brian, St. Francisville, and carried).

The Secretary cast the ballot and the President declared Dr. Wilkinson elected.

The President: Nominations are in order for delegates to the American Medical Association for two years.

(Nominations were presented in each case and the following delegates elected).

Charles J. Whalen, Chicago; W. D. Chapman, Silvis; J. J. Pflock, Chicago; G. Henry Mundt, Chicago; G. C. Otrich, Belleville.

The President: Nominations are in order for five alternate delegates at large for two years.

(Nominations were presented in each case and the following alternate delegates at large elected.)

M. I. Kaplan, Chicago; W. E. Kittler, Rochelle; N. S. Davis III, Chicago; Frank P. Hammond, Chicago; R. J. Coultas, Mattoon.

The President: Nominations are now in order for members of the Standing Committees.

(Nominations were presented in each case, the Secretary instructed to cast the affirmative ballot and the President declared them elected).

The following Committees were elected:

*Public Policy:* C. J. Drueck, Chicago; W. S. Bougher, *Chairman*, Chicago; George Michell, Peoria.

*Medical Legislation:* John R. Neal, *Chairman*, Springfield; Thomas P. Foley, Chicago; Edward Bowe, Jacksonville.

*Medico-Legal:* R. O. Hawthorne, Monticello; Arthur H. Geiger, Chicago. (Two members elected for three years).

*Relations to Public Health Administration:* L. O. Frech, Decatur, Frank F. Maple, Chicago; C. C. Rentfro, Chicago; Thomas Meany, Chicago; Bernard Klein, Joliet.

*Medical Education and Hospitals:* J. P. Simonds, Chicago; W. R. Marshall, Clinton, H. O. Munson, Rushville.

The President: The next order of business is the report of the Resolutions Committee.

# 1. Retiring President Member of Council for Three Years

1. WHEREAS, when a man has attained to the presidency of the Illinois State Medical Society, he has been equipped by that and previous experience, to serve the Society in manifold ways, and

WHEREAS, when a president retires from office, his native and acquired education hitherto has been lost to the Society, and

WHEREAS, the Illinois State Medical Society is thereby deprived of the valuable services of a man whom the Society has educated and developed, and therefore,

*Be it Resolved*, that the necessary changes be effected whereby presidents of the State Society, at the conclusion of their terms of office, shall hereafter become ex-officio members of the Council of the Society for a period of three years.

Dr. J. S. Templeton: I move the adoption of this resolution. (Motion seconded by Dr. W. S. Bougher, Chicago, and carried).

# 2. Amendment to Constitution to Provide for Successor to President-Elect

(See pages 44-45)

Dr. J. S. Templeton: I move that the resolution be adopted. (Seconded by Dr. L. E. Day, Chicago).

Dr. Walter E. Kittler, Rochelle: I believe that provisions have been made for the Council to elect or fill the vacancy for Councilors, Treasurer and Secretary. The Council has enough responsibility and I believe the job of electing a President should be left to the House of Delegates. This motion was presented the other day before the House of Delegates but not presented as read. If you want to pass this amendment, it must lay over. I wish that the matter be tabled and the House of Delegates allowed to elect a President-Elect as in the past.

Dr. P. R. Blodgett, Chicago Heights: Was this amendment to the constitution and by-laws read at the last session?

Dr. Kittler: Not as read here this morning.

Dr. E. P. Sloan, Bloomington: If this motion prevails there is likely to be considerable confusion. Under the recent situation we had if the Chairman of the Council had filled this unexpired term, then he would have been automatically president for the next year. It works out

better if you leave the office of President-Elect vacant. I move you, Sir, that this resolution be tabled. (Motion seconded by Dr. Kittler and carried).

Dr. E. E. Davis, Avon: I rise for information. Was this read at the other session as read here today?

Dr. Kittler: It was not read as read here today.

### 3. *Reduction In Dues*

(See Page 44)

Dr. Templeton: This resolution is disapproved by the majority of the Committee and in its place recommendation is made that we adopt the following resolution:

*Resolved*, that since there are in the State of Illinois physicians hard pressed for funds, we endorse the suggestion of the Council of the Illinois State Medical Society that the Secretary be empowered to return to each County Society one dollar (\$1.00) per member of their 1934 dues.

The reason for this is that since this emergency exists at this time this one dollar will be returned to the county societies to use as they see fit. If necessary, we can do the same thing next year, and that will return two dollars per member by 1935. It will take effect at once. If we pass the other resolution it will not take effect. I move the adoption of the resolution presented by the Committee. (Seconded by Dr. I. F. Harter, Stronghurst).

Dr. P. R. Blodgett, Chicago Heights: I move to amend by substitution that the dues be fixed at five dollars for 1935. (Seconded by Dr. Robert H. Hayes, Chicago).

Dr. P. R. Blodgett: The rebating back of dues is in the form of a situation such as we find in federal aid grants, a situation which is reprehensible to the majority of those who think. The rebate of the State Society dues does not affect the status of the individual doctor. As we analyze the resources of this State Society, we have a reserve fund of \$110,000 or \$111,000. The Council has shown us that they can reduce expenditures as they did during this year. In the Chicago Medical Society we have reduced our dues to members from fifteen to ten dollars. That is helping the economic status of the individual doctor. We hear a great deal today about medical economics. I think the place where we should

begin is at home. Certainly with a reserve fund as large as this Society has, we do not need state dues of seven dollars per year. This is the method by which we can help economically, even though in a small way, the status of the individual doctor. The great bulk of the State Society does support such a resolution. I introduced a similar resolution in the Council of the Chicago Medical Society the first of this month which was passed with few dissenting votes and which permitted me to introduce this resolution before the House of Delegates at this annual session. The constitution provides that the House of Delegates shall state the annual dues. It does not give any alternative of setting higher dues and then offering a rebate or reduction. So, Mr. Chairman, it seems fair to me in view of the position of the average doctor who needs help today almost as much as he did a year ago, in view of the fact that the reserves of the Illinois State Medical Society are as they are, that we might well reduce the dues to five dollars. If that emergency does arise, if that wolf that we hear so much about as state medicine and so on comes to our door, we can raise the dues again. I know the question will be raised as it is always raised when there is question of dues, that the osteopath, the chiropractor, and one after another of the cults, pay much more than we do. But organized medicine does not have to pay tribute to outside sources. The argument is entirely outside the question. Other societies may keep their dues as high as they please, but we have a problem here in Illinois of doing something definite and agreeable to help the individual member.

Dr. J. S. Nagel, Chicago: The gentleman said we are doing something for the individual member. That is true. This resolution purports to do something right away. The Chicago Medical Society reduces its dues to \$10.00 and we are paying \$7.00 to the State Society. If this resolution prevails, the Chicago Medical Society will have refunded some money to carry on its activities. Why put this off? In my mind this should prevail because it will take effect immediately. It affects the counties down state the same as the Chicago Medical Society in that they will have money refunded. I am in favor of the resolution prevailing.

Dr. A. L. Williams, Chicago: I am in favor of the original resolution. That dollar reduction



to every doctor in this state is a slap in the face. It does not fill your gas tank; it does not put oil in your car. What we are doing is not for the men who have paid their dues but for the men in the outlying sections who cannot raise money to pay their dues. We have lost a good many members in Chicago because the dues have been \$15.00. We have reduced our dues to \$10.00. I think the State ought to come to us and instead of offering a two dollar reduction, allow us to go back to the five dollar rate. When we take the figures of the Treasurer, we find \$111,000 in reserve. Bonds are paying four per cent or a little better. There are 7,000 members in the State Society. Taking this as a basis, they have already saved in handling the funds to reach \$10,000. Let us have that same saving again. It will only be \$4,000 a year saved in the reduction of two dollars a year in dues. This reserve will take care of the emergency now existing.

The President: I would like to call upon the Chairman of the Council to discuss this question.

Dr. R. K. Packard, Chicago: There seems to have been everything said about this question as can be said. I do not believe the doctors are going to be saved either by one dollar or two. That is my personal opinion. A survey of other states has shown quite conclusively that a reduction of one or two dollars in dues does not increase the membership. I think the fundamental thing for this House of Delegates to keep in mind is not about one or two dollars—two dollars is not going to fill the gas tank, pay the rent or send the children to school—but the problems that confront medicine, and our ability to be in position to constantly fight those problems. That is the thing we should seriously consider. The amount we have in reserve in the treasury of the Chicago Medical Society and the Illinois State Medical Society has been saved through the years. What a tremendously fortunate thing it is that we have had dues in the past that enable us at this time to have a reserve! It looks to me as though there are increasing problems coming before organized medicine that have to be faced. There are some new problems and it is imperative to see that our Council has money. I feel that the dues should not be reduced. It is not such an easy thing if dues are reduced to raise them again. The return of one dollar—I am not primarily interested in that from the

standpoint that it is going to be a single dollar back in the doctor's pocketbook; it is going to help the county society's fund. Many of the county societies' funds are depleted. It is going to put some funds in their treasuries to carry on the work they want to do and can do and should be in position to do immediately.

The President: I should like to call upon the Secretary to discuss this motion.

The Secretary: I want to say a few words about the \$111,000. The cash balance of \$37,740.03, changes from day to day. We carry a daily balance. Immediately after this meeting when the bills accumulating from this meeting will be paid there will be a reduction in the cash balance. At the semi-annual meeting of the Medico-Legal Committee bills which have accumulated since the first of the year were approved. This amount means that we were unusually successful the first four months of the year in collecting dues for 1934. A great deal of this will have to be used to pay bills for the next eight months of 1934. Another reason why we had quite a saving in overhead was that this is the off-year in the Legislature. Next year with the Legislature in session we will have the usual bills of six to eight thousand dollars, that we did not have this year. That is also a fluctuating condition. The bonds we reported this year were reported at par. They are worth more today than last year; they are not worth \$74,000 today though they appear at par in the report.

Dr. J. S. Templeton: I would like to agree with Dr. Packard that one or two dollars does not make any difference. Yet we have to admit that for the last two or three years the county societies have been carrying some members and they cannot carry them any longer. Some county banks are still closed and the county funds are tied up. In one particular place funds are tied up that should have been put into the county society two years ago and there is no prospect of the bank being opened. If the county societies are in need of funds and they have members who cannot pay dues, this rebate will help to fill up their coffers and then they can help their members who cannot pay. They can carry their members and save losing them.

Dr. C. C. Rentfro, Chicago: I think the most important thing in this whole discussion is the drop in membership. Look over the roster of the



Chicago Medical Society and half the doctors in Chicago do not belong to the Society. There are other associations springing up. Old business concerns that persisted in carrying on old business methods, where are they? Somebody else is selling goods over their counters. They did not keep abreast of the times, so they went out of business. It is more important to have members than \$100,000 in the bank. How are you going to talk to prospective members when you keep your dues up where they are? Every golf club and society you belong to have cut down on the dues. The hotels have cut down on their charge. Go out and sell memberships in organized medicine. Tell the men, "we have some money in the bank and we will use it." Do not cut down the activities. Let us spread some of the money we have in the bank to advertise medicine. When you need money, then you can go to the members and they will contribute money. One of the counties reported a loss of 19 members. That means something to me. If you are accumulating funds with men on charity, how do they feel? Do they want to belong to an organization in which they have to be carried on charity? I would not. If you cut down the dues, they will promptly go along with us. We need new members. The doctor's wife has to cut down on what she has to spend for the household. Why should not the doctor cut down on what he spends for dues? I cannot go down on the corner and talk to these younger men and urge them to join the Chicago Medical Society.

Dr. J. S. Nagel, Chicago: In answer to the arguments of Dr. Rentfro, his talk is entirely beside the question. We are not talking about reducing the dues in the local society. I can speak for the Chicago Medical Society; the dues have been reduced five dollars. His talk has nothing to do with the question before the House. When you talk about bringing in members to the Chicago Medical Society, it has nothing to do with the question. I am addressing my remarks to you gentlemen down state. If worst comes to worst the Chicago Medical Society has sufficient funds that they can run their society for a year or longer without the payment of dues. The benefits to be derived from this proposed resolution interest me, and should interest the county societies because we are refunding money to you. It has nothing to do with bringing in new members.

It is a question whether we can carry on the activities downstate until such a time as you can rehabilitate yourselves. If the Chicago Medical Society did not get a dollar in dues it can carry on. You men down state are the ones to be benefited by the dollar reduction.

Dr. Edward H. Ochsner, Chicago: I for one do not think that the Chicago Medical Society should in any way reduce its activities. I think if anything it should increase its activities. We should spend more money if that money is needed, but, gentlemen, what is the purpose of a reserve fund? The purpose of a reserve fund is to bridge us over in time of emergency. The Lord knows we are in an emergency just now. Hardly a week passes but what some man comes to me and tells me of his dire straits. I happen to be in a position where men come and tell me those things. If I should spend the time to come and tell you how many splendid men are in trouble and how many splendid men tell me that they can barely pay their dues, it would take most of the morning. It is true if we reduce the state dues two dollars it does not make the dues of the local men any less but it has a tremendous influence on their psychology. The more highbrow we are the more psychology we have to carry around. If we can influence a man's psychology and tell him that the State Medical Society is willing to accept two dollars' reduction and to go into its reserves and carry along, it will help the psychology of the whole medical profession. I urge you to vote for the substitute motion, reducing the dues to five dollars.

Dr. I. F. Harter, Stronghurst: As a small country doctor from one of the smallest agricultural counties in the state, I know some of the needs of the physicians down state in the farming communities. I am here to tell you that some of our members would really have paid their dues if they had been financially able. Some of us who could borrow money went to the expense of paying the dues of some of our members who were unable to pay. If help can be brought to that class of country physicians it would be greatly appreciated. Many of the physicians are paying six per cent interest on borrowed money without hope of being able to pay the principal in the near future. Why not ask our Council to still further economize? I do not believe in lessening the activities of our Society but we have a re-

serve to take care of the activities of the Society in the near future.

Dr. W. E. Kittler, Rochelle: I believe we have discussed this long enough. I call for the question.

The President: We shall vote on the substitute motion, that the dues be reduced to five dollars per year. (Motion carried).

We shall now vote on the original motion as substituted. (Motion carried). The dues for 1935 will be five dollars.

#### 4. *Official Recognition of Scientific Exhibits*

WHEREAS, at the annual meetings of the Illinois State Medical Society there has been a greater interest each year in the preparation and showing of scientific exhibits, and

WHEREAS, many of these exhibits shown have been prepared at considerable expense and represent many weeks of constant effort, and

WHEREAS, previously, this Society has taken no official interest in scientific exhibits in the way of giving official recognition, therefore.

*Be It Resolved*, that a special Scientific Exhibit Committee be appointed by the Council each year to inspect every exhibit of this nature, grade same, and recommend the awarding of Certificates of Merit to those exhibits which, in the opinion of this Committee, are most deserving of honor.

Dr. J. S. Templeton: I move the adoption of this resolution. (Motion seconded by Dr. C. H. Phifer, Chicago, and carried).

#### 5. *Transfer of Montgomery County Medical Society From the Seventh to the Fifth Councilor District*

(See page 45)

Dr. J. S. Templeton: I move the adoption of this resolution. (Motion seconded by Dr. E. E. Davis, Avon, and carried).

#### 6. *Status of Physical Therapy in Illinois*

(See page 44)

Dr. Templeton: I move the adoption of this resolution. (Seconded by Dr. F. O. Frederickson, Chicago).

Dr. Edward H. Ochsner, Chicago: I do not believe it is good policy for this Society to increase the number of committees. I move as a substitute motion that this matter be referred to the Committee on Medical Education and Hospitals. (Motion seconded).

Dr. F. P. Hammond, Chicago: This State should be abreast of advancing medical affairs. The American Medical Association has had such a committee for several years and to date there are seven states that have such committees. That is one branch of the healing art that is being neglected in the state of Illinois. It seems to me that this is the time to appoint a committee from this Society to overlook the standards of that method of the healing art.

Dr. M. I. Kaplan, Chicago: We who are engaged in the work of physiotherapy, both in x-ray and otherwise come in contact with individuals or physicians who will refer patients to physiotherapists who are irregular. Many are, of course, regular. When it comes to judging who is regular and who is irregular, I think the Committee on Hospital Organization is not the proper committee. It should be taken up by a committee of men who understand this particular type of therapy, and this particular branch of medicine. I think as Dr. Hammond said, this should be referred to a special committee.

Dr. Ochsner: I think it is a very grave mistake to have too many committees. We are getting spread out so we are getting nowhere. Now the Committee on Medical Education and Hospitals is headed by a very capable man, Dr. Simonds. I do not know of any man who is more capable to consider this question. The other two men on that committee are capable. If this substitution prevails, I would then be glad to introduce a resolution that the name of the Committee be changed to medical education, hospitals and physiotherapy. Then in another year some man can be elected who is particularly interested in physiotherapy. We are spreading out too much. We can specialize to a point where it is just a nuisance. I think this committee is perfectly capable of handling this problem.

Dr. J. S. Nagel, Chicago: I move as a substitute to the substitute that this matter be referred to the Council with power to act. It is necessary if such a committee is appointed that men should be appointed on it who understand physiotherapy and have made a study of it. I have just spoken to members of the Council and they are willing that this be referred to the Council. (Seconded by Dr. F. P. Hammond, Chicago).

Dr. Ochsner: I withdraw my substitute motion.



The President: We shall vote on the substitute, that this matter be referred to the Council with power to act. (Motion carried).

We shall now vote on the original motion as substituted. (Motion carried).

*7. Compiling of Approved Lists of Hospitals, Clinics, Medical Colleges, and Like Institutions*

WHEREAS, definite policies are now in operation and in the process of development in various parts of the country, with the object of attaining the cooperation of hospitals, clinics, medical colleges and like institutions, in observing the economic and ethical principles enunciated by component local societies in affiliation with the Illinois State Medical Society, and

WHEREAS, as a result of the promulgation of these policies by component units of the Illinois State Medical Society definite "approved lists" of hospitals, clinics, medical colleges, and like institutions may properly be compiled, therefore be it

*Resolved*, that the Illinois State Medical Society memorialize the American Medical Association, and instruct its delegates thereto, to request the American Medical Association to adopt policies by which the American Medical Association shall not approve any institution for any purpose unless and until such institution shall be officially in the approved list of the component medical society or societies in the jurisdiction of which such hospital or institution is located, or operates. Any institution failing of approval of the society or societies concerned shall have the right of appeal to and hearing before the proper committee of the American Medical Association.

Dr. Templeton: I move the adoption of this resolution. (Seconded by Dr. E. E. Davis, Avon).

Dr. G. Henry Mundt, Chicago: I think this is one of the most cumbersome things the delegates can possibly take to the American Medical Association. It will not pass because it will be so cumbersome to get the local medical societies over the country to pass on local institutions. I should dislike very much to advocate that this House of Delegates refer this resolution to the American Medical Association. I do not think the thing can possibly go through. They will maintain, and I think rightfully, that the Council on Medical Education and Hospitals are quite

competent to pass on institutions to be approved by the American Medical Association.

I arise for another reason in opposition to this resolution, that is because I feel that we have been introducing in the House of Delegates of the American Medical Association a resolution for some years which has not been accepted by the House but will eventually be, and I fear that there will be a conflict in the minds of some men as to our feeling on these two resolutions. I refer to the resolution which has been regularly introduced in the House of Delegates of the American Medical Association, that no man can be on the staff of an institution approved by the Council on Medical Education and Hospitals who is not a member of his local society, which makes him eligible for membership in the American Medical Association.

I am particularly anxious to see that this resolution introduced here this morning be not passed because it is cumbersome.

Dr. W. E. Kittler, Rochelle: This resolution is going to be a hardship on the small communities. There are forty or fifty hospitals in this state that cannot comply with it. They are glad to have a hospital. If this resolution is adopted it would close those institutions and make a hardship to the people in the locality. For this reason I move that the resolution be tabled. (Seconded by Dr. Andy Hall, Mt. Vernon).

Dr. T. B. Knox, Quincy: I wonder how many understand the situation in the state of Missouri. I believe it is up to the House of Delegates of the Illinois State Medical Society to render some sort of assistance to the state of Missouri, where osteopaths and chiropractors can practice medicine and surgery in all its branches. The osteopaths can build a hospital and leave out the legitimate practitioner of medicine. There is a very unfortunate situation existing there. While I am not in favor of this resolution as it stands, I think we owe them something. They have two or three osteopathic colleges in Missouri. I live on the river across from Missouri and understand the situation.

Dr. G. C. Otrich, Belleville: I am the member who brought the resolution from Missouri. I happen to be a member of the St. Louis Medical Society. The St. Louis Medical Society is trying to bring about regulation of their hospitals. Their clinics have been abused to a very great ex-



tent. They have full time men in their institutions and teaching in these various colleges and they have been leaving the clinics wide open.

The President: The question has been called for. A motion to table is not debatable. (Motion to table resolution carried).

#### *S. Expense of Annual Meeting*

##### Chapter XI, Section 4—Substitute Section.

The Committee on Arrangements shall confer with a Council Committee relative to the incurring of expenses of the Annual Meeting. All legitimate and approved expenses in connection with the proper conduction of the Annual Meeting will be paid by this Society, and the Host Society will not be held liable for a deficit. The Council shall be entirely responsible for the selection of ethical exhibits at the Annual meetings.

Dr. J. S. Templeton: I move the adoption of this resolution. (Motion seconded by Dr. I. H. Neece, Decatur, and carried).

#### *9. Resolution Opposing the Exploitation of Drugs, Remedies, Etc., Over the Radio*

(See Pages 43-44)

Dr. J. S. Templeton: I move the adoption of this resolution. (Motion seconded by Dr. G. Henry Mundt, Chicago).

Dr. P. B. Blodgett, Chicago Heights: I move to add by amendment the following:

"and, *be it further resolved*, that a copy of this resolution be forwarded to the House of Delegates of the American Medical Association for their serious consideration." (Seconded).

Dr. Walter E. Kittler, Rochelle: I would like to amend the amendment by adding the words, "and to all other state societies." (Seconded).

Dr. P. B. Blodgett: I accept the amendment.

Dr. Guy M. Cushing, Chicago: This resolution was presented by me to the Council of the Chicago Medical Society. In that resolution we included the words, that it be sent to the secretary of each state society and to the American Medical Association. The offices of the Chicago Medical Society have already done that. I presented it here because I was directed to do so by the Chicago Medical Society.

The President: We shall vote on the amendment. (Amendment is carried).

The President: We shall vote on the resolution as amended. (Resolution as amended is carried).

#### *10. Letter from Dr. Woodward Concerning Certain Legislative Matters*

(See page 46)

Dr. J. S. Templeton: I move that this resolution be referred to the Council with power to act. (Seconded by Dr. F. O. Frederickson, Chicago, and carried).

#### *11. Death of President-Elect Charles D. Center*

WHEREAS, we recognize in the death of Dr. Charles D. Center a great loss to the medical profession and wish to hereby express our appreciation of his services to the Illinois State Medical Society and to humanity,

*Be it Resolved*, that we express our appreciation of Dr. Center's personality, his honesty of purpose and example of industry. He was a tireless worker, an earnest seeker of knowledge of the ways and means to relieve the suffering of humanity. Dr. Center served long and effectively in our Society, and

*Be it Further Resolved*, that this House of Delegates express our sorrow and regret because of the death of our esteemed and beloved President-Elect, Dr. Charles D. Center, and that we send to the family a copy of these resolutions and spread a copy on our records.

Dr. J. S. Templeton: I move the adoption of this resolution. (Motion seconded by Dr. O. W. Rest, Chicago, and carried).

#### *12. Resolution of Thanks to the City of Springfield*

*Resolved*, that the Secretary be instructed to draw up the usual resolutions thanking the proper people in Springfield for their hospitality during the 1934 meeting.

Dr. Templeton: I move the adoption of this resolution. (Motion seconded by Dr. Charles H. Phifer, Chicago, and carried).

Dr. P. R. Blodgett, Chicago: In lieu of the resolution that has been passed lamenting the death of Colonel Center and our message to the living, it seems only desirable and appropriate that Colonel Center be listed among the past presidents of this Society. He was elected to assume office at this meeting. His sudden and untimely death prevented his being president of this Society. I move that in the list of past presidents of the Society that Colonel Center's name be included. (Motion seconded by Dr. W. E. Kittler, Rochelle).

Dr. F. O. Frederickson, Chicago: I move to amend the motion, that it be referred to the Council with power to act. (Seconded by Dr. Lee N. Frech, Decatur).

Dr. L. E. Day, Chicago: It is a little bit hard to know how that can be done in a way that is not illegal. The thought came to me that if at the end of Dr. Kreuscher's term, this body stayed in session one minute before the induction of the other man, we could consider that Colonel Center had been in office.

Dr. Blodgett: I move to table amendment and call for the original motion. (Seconded).

(Vote to table amendment carried, 31 for and 26 against).

Dr. Edward H. Ochsner, Chicago: The reason I supported Dr. Frederickson's amendment was that it would be disastrous if we passed this resolution and then found it was unconstitutional.

Dr. F. P. Hammond, Chicago: The constitution has no effect upon the procedure. In this motion there is nothing more intended than to write his name in the records as having been elected as president. I am quite certain that the constitution will not conflict. Just write his name between Dr. Kreuscher's and his successor.

Dr. Lee N. Frech, Decatur: The reason I seconded this motion was that Colonel Center was not a past president and was never in office. I move as an amendment that he be listed as a past-president-elect of this Society. (Seconded by Dr. L. J. Hughes, Elgin).

Dr. C. E. Humiston, Chicago: I would like to back the amendment. I knew Colonel Center and know that anything in the way of sham and pretense is something that he would not be a party to. To list him as something that he never was, if he were here he would not like it. Let us honor him in any way possible but not let us say he was something that he never was.

The president: The vote is on the amendment, that Colonel Center be listed as past president-elect. (Amendment carried; original motion as amended carried).

Dr. G. Henry Mundt, Chicago: The presiding officer at this meeting received a document last evening which he will value the rest of his life. I think probably his family will value that as much as any. I therefore make a motion that the Secretary be instructed to have a proper certificate,

such as is in a general line received by presiding officers, prepared for Colonel Center as past president-elect, and forward it after being properly signed to his family. (Motion seconded by Dr. F. O. Frederickson, Chicago, and carried).

Dr. S. E. Munson: A matter was overlooked in regard to having spread upon the records of the Society notice of the death of Dr. C. S. Nelson, Springfield. I wish to present the following resolution and move its adoption. (Motion seconded by Dr. E. P. Sloan, Bloomington, and carried).

WHEREAS, the inevitable fate that restlessly awaits all men at the nether end of life has taken from our midst a warm friend, an able colleague, and a wise counselor in the person of Dr. Charles S. Nelson, of Springfield, and

WHEREAS, throughout his long and useful professional life Dr. Nelson was tireless in his efforts to promote public faith and confidence in the ethical medical profession and as a life-long member of this Society was ever alert in the interests of the practicing physicians as represented by the Illinois State Medical Society and all of its component parts, and

WHEREAS, Dr. Nelson exemplified through his more than thirty years of service on the professional staff of the Illinois Department of Public Health those qualities of efficiency, integrity, honesty, competency and diplomacy that go to make up a physician of parts, and cause to be reposed in him the respect of his fellow practitioners and the confidence of the public, now therefore,

*Be It Resolved* that the Illinois State Medical Society express herewith its appreciation of the value and worth of the life of Dr. Nelson as a member, Councilor, friend and as a doctor, and

*Be It Further Resolved*, that these resolutions be spread on the minutes of the House of Delegates of the Illinois State Medical Society for this 1934 annual session, and that copies be sent to the relatives of Dr. Nelson.

Dr. Mather Pfeifferberger, Alton: By reason of the death of his mother yesterday our President-elect, Dr. C. S. Skaggs, cannot be present at this meeting, I wonder if this House of Delegates could not appoint a committee to induct Dr. Skaggs into office.

The Secretary: The Pressident-Elect is inducted into office by the President. Dr.



Kreuscher will be President until his successor is installed. We had that same thing happen when Dr. Ferguson was inducted into office. The House of Delegates authorized the President and Secretary to visit Dr. Ferguson in his home and induct him into office. I believe the same precedent can be carried out in the case of Dr. Skaggs.

Dr. L. J. Hughes, Elgin: I move that the same procedure be carried out in the case of Dr. Skaggs. (Motion seconded by Dr. E. P. Sloan, Bloomington).

Dr. Sloan: I want to read a message received from Dr. Skaggs. "Please convey my message of sincere gratitude and appreciation to the House of Delegates."

Dr. J. S. Templeton: There will be a meeting of the Council in Chicago in a short time or some place in the state. It will not be unnecessary expense if Dr. Kreuscher holds over and this induction be done at that time. So I favor the motion that the President and Secretary be instructed to induct the President-Elect into office at some future date. (Motion carried).

The President: The next order of business is the selection of a meeting place for 1935.

(Invitations were presented for Moline, Rockford and Decatur. Mr. Littig, Chairman of the Moline Chamber of Commerce, Mr. Crum, of the Rockford Chamber of Commerce, Dr. Frech and Dr. Neece, in behalf of Decatur, and the Secretary, Dr. Camp, discussed the relative merits of three places.)

Dr. Edward H. Ochsner, Chicago: I move that we proceed to ballot, it being understood that this is a preferential ballot, the decision to be left to the Council. (Motion seconded by Dr. Lee N. Frech and carried).

The President: The tellers are Drs. T. H. Culhane, Rockford, H. P. Miller, Rock Island, and Lee N. Frech, Decatur.

Dr. Edward H. Ochsner, Chicago: I move that we express our appreciation and thanks to the two losers. (Motion seconded by Dr. Raymond H. McPherron, Chicago, and carried).

The President: Rockford gets the majority, 40 votes; Decatur 21, and Moline 16. The choice is Rockford.

Dr. Mather Pfeifferberger: I move we adjourn. (Motion seconded by Dr. F. O. Fredrickson, Chicago, and carried).

The House of Delegates adjourned *sine die* at 11 A. M.

## Correspondence

### REPORT OF 1934 MEETING OF THE AMERICAN MEDICAL ASSOCIATION

Members of the Council,  
Illinois State Medical Society.

Gentlemen:

In accordance with instructions given by the Council, your Secretary accompanied the Illinois Delegates to the A. M. A. meeting held in Cleveland, and attended all sessions of the House of Delegates.

The meeting in Cleveland was unusually well attended, and the total registration was probably near the 6,000 mark, as there were more than 5,500 Fellows registered on Wednesday evening, and more than five hundred additional Fellows were expected for Thursday and Friday. Last year in Milwaukee, the total resignation was slightly less than five thousand, so this was really a big meeting.

The Illinois delegates were all present, and were in attendance at each session of the House of Delegates. The delegates were: C. J. Whalen, G. Henry Mundt, C. E. Humiston, Charles B. Reed, J. J. Pflock, William D. Chapman, R. L. Green, G. C. Otrich, Mather Pfeifferberger, and President Skaggs. As usual, the Illinois delegates were well represented on the appointed committees, and Dr. Pfeifferberger was named as chairman of one important committee.

There has probably never been an A. M. A. meeting before, with so many important resolutions introduced as at the 1934 Annual Meeting. The resolution relative to the exploitation of drugs, remedies, etc., over the radio, which was passed by our own House of Delegates in Springfield, was introduced at the request of the Secretary, by our President, Dr. Charles S. Skaggs, and it received much attention. It was referred to the Committee on Hygiene and Public Health, and your Secretary appeared before this committee to discuss the resolution, and urge its approval.

The New York State Society introduced a resolution along similar lines, in which they recommended that the National Broadcasting Company be urged to refrain from permitting the broadcasting of these remedies, and also recommended that a clearing house of physicians be appointed to be consulted before any such ad-



vertising was accepted. The reference committee added one clause to our resolution whereby the great broadcasting companies were to be urged to eliminate these pernicious practices, and we were asked to add a clause whereby the senators and all members of Congress were to be addressed by the A. M. A. so that suitable legislation might be enacted to stop such practices. This was done at our own request, and we were permitted to add the clause, which was unanimously approved by the House, so that the ideas expressed by the New York Society were incorporated with our own in the resolution.

Delegate G. Henry Mundt introduced a resolution for the fourth consecutive year, relative to staff membership of all hospitals approved for interne training, whereby only members of the A. M. A. could be retained as staff members. The committee in the past has approved the resolution in principle, but did not deem it advisable to make such a demand of the Council on Medical Education and Hospitals. The committee in making its report, again approved the idea in principle only. Dr. Mundt appealed to the House for the passing of the resolution and authorized the Council to see that it was enforced.

When the vote was taken, the resolution was passed unanimously, as presented by Dr. Mundt. Under this resolution, physicians expelled from county medical societies cannot retain their staff membership in approved hospitals, which your delegates were thoroughly convinced was proper.

An important resolution was introduced by the Michigan State Medical Society, in which they deplored the fact that they had asked the Board of Trustees of the A. M. A. to make certain investigations relative to health insurance, and when the Board did not do what the Michigan Society asked them to do, this Society sent a representative to Europe to make certain investigations of medical practice in European countries. It was reported that one Michigan county society was willing to undertake a trial scheme of health insurance in that country, if the House of Delegates approved the idea in principle.

It was decided to consider this resolution at an executive session on Monday afternoon, then when the meeting was held, no action was taken, but a special committee under the chairmanship of Dr. Van Etten, of New York, was appointed to conduct a hearing, and to report at the execu-

tive session on Tuesday afternoon. Several of the Illinois delegates with your Secretary appeared before that committee on Tuesday afternoon.

The executive session on Tuesday afternoon, was most interesting, and was in session from 2:00 to 5:30. The Committee and the House of Delegates were unanimously opposed to all socialization schemes, and a ten point declaration of principles or policy, were recommended by the committee, and were unanimously adopted by the House. They were as follows:

1. All features of medical service in any method of medical practice should be under control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.
2. No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.
3. Patients must have absolute freedom to choose a legally qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give services.
4. The method of giving the service must retain a permanent, confidential relation between a patient and "a family physician." This relation must be the fundamental and dominating feature of any system.
5. All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operations according to medical standards.
6. However the cost of medical service may be distributed, the immediate cost should be borne by the patient able to pay at the time the service is rendered.
7. Medical service must have no connection with any cash benefits.
8. Any form of medical service should include within its scope all qualified physicians of the locality covered by its operations who wish to give service under the conditions established.
9. Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.
10. There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession.

In summarizing the above, it was the consensus that the present standard of medical practice in the United States is superior to that afforded people generally in any other country of the

world. If it is determined in any community that some experiment to change the method of administering medical services is desirable observation of the principles adopted will remove many of the "disturbing influences" from such an experiment. In all such experiments attention must be sharply focused on the quality of medical service rather than primarily on any other factor.

Last Monday morning, the day of the first meeting of the House of Delegates, a report emanated from Chicago through the press, whereby the Board of Regents of the American College of Surgeons went on record as favoring prepayment health insurance. A resolution against this policy and asking the Board of Regents for an explanation, was introduced by Dr. Whalen, and approved by the House.

Dr. Franklin H. Martin, of Chicago, Director General of the College of Surgeons, was present in Cleveland, and wanted the privilege of appearing before the House, but such permission was not granted. Several members of the Board of Regents of the College were present, and appeared on important committees, and these men were all very insistent that they were not interviewed on the subject, prior to the releasing of this plan from Chicago, following the Sunday meeting of the Board of Regents.

These actions of the House of Delegates in which it is stated that "we have made American Medicine the best in the world, by our methods, and we consider it our business to regulate what we have built up," have unequivocally placed organized medicine against socialization of Medicine, or any other disturbance of the ancient relationship of doctor and patient by any outside agency.

As the members of the Council of our Society well know, these are the points which our Society and our Editor have fought for, over a long period of time.

Your Secretary, before leaving Cleveland, was unable to procure copies of the many resolutions which were introduced and acted on, but these will all appear in the transactions of the House of Delegates to be published in the Journal of the A. M. A. during the next few weeks and we would respectfully urge each of you to look them over carefully.

The Judicial Council recommended some specific additions to the Principles of Medical

Ethics, which were unanimously approved by the House of Delegates.

One of these particularly, is of interest to our Council at this time, after sustaining the action taken by the Christian County Medical Society in expelling Dr. R. J. Miller, which case was reviewed in Dr. Miller's appeal to the Council two weeks ago. It is specifically unethical when in cases where work is done under any form of contract, the right of the patient to select the physician of their choice is not granted.

Another equally interesting addition to the Principles of Medical Ethics, is that referring to physicians working for Lay-controlled or supervised medical organizations, whereby it is unethical for physicians to work under these schemes so that a profit is made by others, for the work done by the physician himself. This would unquestionably affect the work done for physicians appointed as examiners for such organizations as the Life Extension Institute, where the Institute itself makes the charge for the examination, and pays the physician only a part of the charge made.

This was the year for the Triennial reapportionment of the House of Delegates, and owing to the fact that our Society has lost some four hundred members, nearly all in Cook County, during the past three years, Illinois, next year, and for the following two years, will have nine delegates instead of ten, as we have had in the House for several years. There was no way by which this reduction in the Illinois delegation could be prevented, and the committee on reapportionment, of which Dr. Charles B. Reed was a member, recommended in accordance with the By-laws of the A. M. A., that each state society be allowed one delegate for each 775 members, or major fraction thereof.

It will be necessary for our Society, through well organized procedures or campaigns to regain the membership lost during the past two years, although it will be three years before the next apportionment of delegates is made and we will have only nine for the period. The Illinois delegates early in the meeting, learned that the delegates from the South were anxious to put Dr. James S. McLester, of Birmingham, Alabama, up as a candidate for President-Elect, while many of the Eastern delegates, with those from Michigan, Missouri, Texas, Massachusetts, and



Virginia, especially, were going to work hard again this year for Surgeon General Hugh S. Cummings, of the U. S. Public Health Service. They were insisting that the Surgeon General, if successful, would be willing to resign from the Governmental appointment, and devote his time to the best interests of the Association and its members, but no positive statements to that effect were available.

The Illinois delegates after carefully considering the candidates, voted unanimously to support the man in actual practice,—the Professor of Medicine at the University of Alabama School of Medicine, a Class A medical school, the author of several excellent works on Medicine and Diagnosis, a member of the Council on Medical Education and Hospitals, of the A. M. A., and an all around honest to goodness practitioner of Medicine. The vote was 85 for McLester, and 71 for Cummings, and if the Illinois delegates had given their support to Cummings, McLester would have lost by 6 votes. Dr. McLester assured us of his gratitude to the Illinois delegation, and insisted that he would devote his time and interests to the best interests of our medical organizations at all times.

A member of our Society, Dr. Herman L. Kretschmer, was re-elected as Treasurer for the coming year, Olin West was re-elected as Secretary, and Atlantic City was selected as the meeting place for 1935. The Illinois delegation once more held the respect of this House of Delegates, and we were approached by delegates from Iowa, and several other states, to see if our delegation had anything in particular that they were interested in this year, with an assurance of support.

The President and Secretary of our Society visited many of the commercial and scientific exhibits, and received an assurance of several exhibitors for the 1935 Annual Meeting to be held in Rockford. We also received assurance that we would have some more interesting scientific exhibits to be shown by members of our Society. Among the outstanding scientific exhibits, were symposium exhibits on the treatment of burns, heart disease, featuring coronary disease, syphilis, and the prevention of eye injuries. These features will be called to the attention of our newly created Committee on Scientific Exhibits, so that same may be followed in their arrangements for

scientific exhibits for the 1935 Annual Meeting.

It was quite interesting to see the Chairman of the Judicial Council, in the report of that Body, recommended the approval of some recommendations pertaining to Medical Ethics, which last year were submitted as a majority report by E. P. Sloan, a member of the Council, and which at that time, were not approved by the Chairman. They were unanimously approved this time by the House as a whole.

We again want to call to the attention of the Council, the advisability each year, of sending delegates to the A. M. A. from our Society, who will at all times keep the interests of the Society in mind, and who will continue to hold the respect of all delegations from other states, and especially those of the Middle West.

In closing, we again want to urge each of you to look over the proceedings of the House of Delegates to be published in the Journal of the A. M. A. real soon, and keep in mind especially those things which are of general interest to our own Society.

Respectfully submitted,

HAROLD M. CAMP, M.D.,

Secretary.

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THE TECHNICIAN ANESTHETISTS ARE  
VIOLATING THE MEDICAL PRACTICE  
ACT—THE RECENT A. M. A. RESO-  
LUTIONS AFFECT SOME OF  
THOSE WHO ARE IN ANES-  
THESIA

CONGRESS OF ANESTHETISTS

Rocky River, Ohio, June 23, 1934.

*To the Editor:* Sorry I missed seeing you during the Cleveland meeting, it is so good to have even a short friendly talk with you at long intervals. We are rather interested in several of the resolutions which the A. M. A. House of Delegates passed and we are wondering how they will affect some of those who are in anesthesia. As we understand it your own resolution makes any member of the A. M. A. unethical who sells his services in the practice of medicine to a corporation and this would especially seem to hold true for some doctors who are being paid by hospitals to conduct schools for turning out nurse anesthetists. Certainly the technician anesthetists are violating the medical practice act and it



would seem very unethical conduct to accept a salary from a corporation like a hospital to create them.

Also the Mundt resolution seems to be applicable. As we understand it for the future all staff members or those practicing medicine in the hospital must be members of the A.M.A. Most of our anesthetists are members of the A.M.A. and would have no difficulty in complying with this requirement, but some of them are being boycotted as members of the A.M.A. by the use of technician anesthetists who are not members of the A.M.A. and who are not licensed to practice medicine. It seems rather tragic to force physician anesthetists not only to have a college education, a four year medical course and internship and also membership in the A.M.A. to get on the staff of a hospital and at the same time allow nurses to practice medicine without meeting the same rigid requirements or passing a basic science or state medical board examination.

If either of these resolutions are applicable to our situations as outlined we would be glad to hear so and do anything we could to help in their enforcement. We note with a great deal of interest the suit which is being brought in Chicago by the attorney general of Illinois and we certainly hope that you win. Our Los Angeles anesthetists have brought an injunction suit against the one remaining nurse anesthetist in Los Angeles and St. Vincent's Hospital on the basis that both are infringing on the property rights of the physician in practicing medicine without a license and for the corporation practice of medicine. A preliminary injunction has been granted and the case goes to trial July 11th. We understand from those involved that in making her deposition the nurse anesthetist admitted practicing medicine and also said that the operating surgeon was not in a position to direct her work but had to rely absolutely on her judgment.

If a decision is won in the Los Angeles case the same sort of decision could no doubt be secured in practically every other state and in that event it would be possible to put between thirty and forty doctors back to work in Chicago Hospitals alone giving anesthetics who are now hard pressed to make a living on account of the inroads of technicians in all the sorts of work the doctor should be doing.

We have no special interest in this matter ex-

cept that for thirty years we also have been personally and in our organizations fighting to keep the doctor in the practice of medicine and to keep unlicensed persons, corporations and technicians out of the practice of medicine. Any help that the ILLINOIS MEDICAL JOURNAL, the Bulletin of the Chicago Medical Society, or the Illinois State Medical Society can give us along these lines in Chicago and throughout Illinois would certainly be deeply appreciated and would go far in putting a lot of doctors back to work.

So far as we know there are only two of the medical schools and three hospitals in Chicago using doctors exclusively in the practice of anesthesia. These are Rush Medical (Chicago University) and the Illinois Medical and the Presbyterian, Billings and Research Hospitals. On the other hand practically all the other hospitals and Northwestern are using nurses and there are even several schools for nurse anesthetists. If this situation could be cleaned up Chicago could be made one of the world's centers for professional anesthesia.

F. H. McMECHAN, M. D.,  
Editor, Journal Anesthesia.

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### BACK NUMBERS OF THE JOURNAL WANTED

We would like to procure the ILLINOIS MEDICAL JOURNAL for the year 1903—4 volume 5. This volume is needed to complete the library files of the American College of Surgeons.

If you have copies of the JOURNAL for December, 1933, not required for your file, please notify or return to 6221 Kenmore Ave., Chicago.

When several physicians in the same office receive the JOURNAL and do not require several copies to file, it is suggested that the extra copies be sent to the medical libraries or colleges which do not receive it. Requests to change addresses may be directed to 6221 Kenmore Ave., Chicago.

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### FATHER'S DAY TRIBUTE TO THE FAMILY DOCTOR

I saw him kneeling there before the child,  
The bearded doctor, bending tenderly  
Over the pale and bleeding boy of three  
Who had been wounded sorely in some wild  
And savage game. The good physician smiled,  
Whispering jolly nothings into wee  
And eager ears until the lad was free  
From every fear and fully reconciled.

Ah, standing in the doorway watching them,  
The one's kind healing touch, the other's keen  
Young eyes that burn, each like a deep-set gem,  
My spirit kneels before another scene;  
Good doctor, might I kiss your garment's hem,  
As once was done unto the Nazarene!

—Charlotte Reynolds.

#### THE AMERICAN COLLEGE OF PHYSICIANS WILL MEET IN PHILADELPHIA, 1935

The American College of Physicians will hold its Nineteenth Annual Clinical Session in Philadelphia, April 29-May 3, 1935.

Announcement of these dates is made particularly with a view not only of apprising physicians generally of the meeting, but also to prevent conflicting dates with other societies that are now arranging their 1935 meetings.

Dr. Jonathan C. Meakins, of Montreal, Que., is President of the American College of Physicians, and will arrange the Program of General Sessions. Dr. Alfred Stengel, Vice President in Charge of Medical Affairs of the University of Pennsylvania, has been appointed General Chairman of local arrangements, and will be in charge of the Program of Clinics. Mr. E. R. Loveland, Executive Secretary, 133-135 S. 36th Street, Philadelphia, Pa., is in charge of general and business arrangements, and may be addressed concerning any feature of the forthcoming Session.

#### DISTINGUISHED CHICAGO EDUCATOR HONORED BY PHILADELPHIA COLLEGE

Edmund N. Gathercoal, 701 South Wood Street, is the recipient, June 6, of the honorary degree of master of pharmacy, conferred by the Philadelphia College of Pharmacy and Science at its 112th annual commencement exercises, in recognition of his distinguished services to science. Mr. Gathercoal is professor of pharmacology, College of Pharmacy University of Illinois and chairman of the National Formulary Revision Committee and of the National Pharmaceutical Research Conference.

The Philadelphia College of Pharmacy is one of the oldest collegiate institutions in the United States devoted to the teaching of the physical sciences. It was founded in 1821.

#### REPORT OF THE TWELFTH ANNUAL MEETING OF THE WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

Cleveland, Ohio

June 11-16, 1934

#### PRE-CONVENTION BOARD MEETING:

Monday, June 11 at 10:00 A. M. Mrs. James Blake, the President, presided, giving the address of welcome.

The following chairmen of committees were appointed:

Elections—Mrs. C. C. Tomlinson, Nebraska.

Resolutions—Mrs. Lucius Cole, Illinois.

Nominating—Mrs. Rock Sleyster, Wisconsin.

The new Constitution and By-Laws were read by the Parliamentarian, Mrs. William J. Byrnes, Minnesota. After discussion, it was voted to table them for another year.

Recommendations were presented as follows:

By the chairman of Legislation, Mrs. Philip Schuyler Doane, California: To change the name "Woman's Auxiliary to the American Medical Association" to "American Medical Auxiliary."

By the Treasurer, Mrs. James F. Percy, California: That the Corinne Keen Freeman Memorial Fund be changed to the Corinne Keen Freeman Revolving Fund.

At 7:00 P. M. a dinner and reception were given honoring Past-Presidents, National Board Delegates and wives of officers and delegates of the A. M. A.

*Tuesday, June 12, 1934, 8:15 A. M.*

Southern Breakfast, Hostesses the President, the President-Elect and Mrs. Southgate Leigh, Virginia.

*Program of First Session—9:30 A. M.*

Mrs. James Blake, President, who presided at this meeting extended greetings to the Convention and the invocation was given by Rev. Herman A. Klahr, Pastor of Old Stone Presbyterian Church, Cleveland.

Greetings were given by the Cleveland Social Chairman, Mrs. Clyde L. Cummer, the response by Mrs. Elmer J. Whitney, Michigan.

In Memoriam, tribute was given by Mrs. Frank S. Haggard, Texas, assisted by Mrs. Charles P. Corn, South Carolina.

Report of Committee on Credentials and Registrations was read by the Chairman, Mrs. Eben J. Carey, Wisconsin.

Following the Roll Call of State Auxiliaries and the reading of the minutes of the Eleventh Annual Meeting, the President's report was read by Mrs. James Blake, with Mrs. R. K. Packard, Illinois, 2nd Vice-President, in the chair.

The president's report was followed by reports of other officers and chairmen of standing committees.

It was recommended by the president that physicians' wives be active in lay organizations, promote work in health and medical subjects, and that they have at all times a keen understanding of medical problems.

The Hygeia chairman suggested that school children be encouraged to write plays on health subjects, as a means of stimulating the interest of adults in health problems; that the Hygeia magazine be used as a source for suggestions and material for such plays. The chairman stated that upon the health education of children rests the future well-being of the country.

Following the business session a luncheon was given at the Lake Shore Hotel overlooking Lake Erie.

On Tuesday evening Auxiliary members attended the opening General meeting of the 85th Annual Session of the American Medical Association in the Music Hall of the Cleveland Public Auditorium. On this occasion the President Elect, Dr. Walter L. Biering of Des Moines, Iowa, was installed as President and made the address of the evening. A medal was presented to the Retiring-President, Doctor Dean Lewis.



*Wednesday, June 13, 9:00 A. M.*

The President presented recommendations which had been sent by the Board to the Convention. These were accepted and are to be presented to the Advisory Board of the American Medical Association for approval.

The report of the resolutions committee was read and accepted.

The report of the nominating committee was presented and the following officers were elected for the coming year:

President, Mrs. Robert Tomlinson, Wilmington, Del. (Elected in 1933.)

President-Elect, Mrs. Rogers N. Herbert, Nashville, Tenn.

First Vice-Pres., Mrs. Rollo K. Packard, Chicago, Ill.

Sec. Vice-Pres., Mrs. Otis Lanson, Seattle, Wash.

Third Vice-Pres., Mrs. J. Bomar White, Atlanta, Ga.

Fourth Vice-Pres., Mrs. William Lett Harris, Norfolk, Va.

Secretary, Mrs. Elmer L. Whitney, Detroit, Mich.

Treasurer, Mrs. Eben J. Carey, Milwaukee, Wisc.

Board of Directors, Mrs. A. A. Herold, Shreveport, La.; Mrs. F. W. Scatena, Sacramento, Calif.; Mrs. M. L. Stevens, Asheville, N. C.

Following the introduction of new officers, the gavel and the president's pin were presented by Mrs. Blake to the incoming President, Mrs. Robert W. Tomlinson, Delaware.

The final report of the Committee on Credentials and Registration was given by Mrs. Eben J. Carey, Wisconsin, Chairman. 1,425 women were present in Cleveland for the convention and 578 were registered by the Auxiliary.

Business session closed in order to hear the guest speakers: Dr. Junius B. Harris, California introduced by Mrs. Philip Schuyler Doane, Chairman of Legislation. The subject of Dr. Harris' address was "The Technique of Putting a Bill Through the Legislature." Dr. W. W. Bauer, Chicago, Director of Bureau of Public Health and Instruction for the American Medical Association spoke on "What the Auxiliary Is Doing and What It Can Do."

At 1:00 P. M. the annual National Auxiliary luncheon was held with Mrs. William Brookshier, Arkansas, presiding, honoring Dr. and Mrs. W. L. Bierring and other distinguished guests from the American Medical Association. An illustrated lecture on Tuberculosis was given by Dr. A. J. Meyer, Minnesota, Professor of Preventive Medicine, University of Minnesota.

Following the luncheon, the reports of the State Presidents were read and many valuable suggestions were gained from them. The report of the Illinois Auxiliary was read by the Past-President, Mrs. Solomon Jones.

On Wednesday evening a musicale and informal reception were tendered to the guests of the American Medical Association by the Ohio State Medical Association and the Academy of Medicine of Cleveland at the Allen Memorial Medical Library.

Post-Convention Board meeting was held Thursday, June 14th at 10:30 A. M.

Mrs. Robert W. Tomlinson, President, presided. After a welcome to the new officers the president announced the names of the chairmen of standing committees and presented plans for the program of work for 1934-1935, which included the following suggestions:

1. Accept membership on boards of women's clubs.
2. Emphasize health education for lay groups.
3. Promote Hygeia magazine.
4. Keep informed on medical subjects.
5. Keep informed about medical legislation.
6. Read medical journals—national, state, local, from standpoint of activities.
7. Maintain social and friendly relationship among physicians and physicians wives.

The following suggestions were made by the Program chairman, Mrs. Arthur B. McGlothlan, Missouri:

1. Use study envelopes wherever applicable.
2. Advise members and other organizations to listen in to radio broadcasts on health subjects by American Medical Association.
3. Use Hygeia magazine more often on state programs.

Adjournment of convention at 1:00 P. M. Luncheon was given at the delightful country club of Cleveland, followed by a visit to the gardens at Glen Allen, residence of Mrs. Frances Fleury Prentiss.

The annual Bring Your Husbands dinner was given at 7:30 P. M.

The social program closed with the Presidents Reception and Ball at the Hotel Cleveland with the American Medical Association as Hosts.

Mrs. Lucius Cole, President,  
Woman's Auxiliary, Illinois State Medical Society.

#### AUXILIARY NOTES

*Dear Fellow Members:* Your President, Mrs. Cole, felt you might be interested in the work being done by the Chicago unit during the Summer Solstice. This year, as last, our work proceeds regardless of vacation periods.

The Century of Progress Committee has blossomed into a lecture unit taking full charge of the Chicago Medical Society Booth from May 26th to October 19th with hours from 12:30 noon to 5:00 P. M. They are endeavoring to rouse the interest of visitors to the extraordinary record of achievement of medical men during the past century. This work is in charge of our Past-President, and veteran chairman, Mrs. A. H. Brumback.

Another note of progress was indicated by an invitation from the Chicago Medical Society to present, at their annual Round-Up on June 6th, a resumé of the accomplishments of the Auxiliary during the past year, by our Past-President, Mrs. Cole, and a prospectus of the year ahead by your correspondent.

Needless to say, Mrs. Cole's report was a source of pride. You all, we hope, heard it at the annual meeting in Springfield.



In prospect—we had this to day:

"It is not for us to tell you what lies in store for us—what may be accomplished during the coming year. We are the Auxiliary to the Chicago Medical Society, here to do your will. That you may the more fully recognize, I am going to read the objects of the Auxiliary.

First: To assist the Chicago Medical Society in the advancement of prevention of disease.

Second: To aid in securing better medical legislation.

Third: To do such other supplemental work as shall be determined from time to time by the Chicago Medical Society.

Fourth: To endeavor by frequent meetings to secure knowledge of, and to disseminate the aims and educational program of organized medicine throughout the community.

Fifth: The Auxiliary shall be a component unit of the Auxiliary to the Illinois State Medical Society, and through it a part of the Auxiliary to the American Medical Association, and shall further the interests thereof.

You have heard the report of the work done by the Auxiliary during the past year. We hope you are as impressed by it as we are pleased to present it.

I believe I am right in saying that much of the enthusiasm which carried that work to completion was engendered by the fact that so much is needed of accomplishment this year. This year the legislature is in session—this year a dire exploitation of anti-scientific thought is being emblazoned by the press—this year so many problems confront organized medicine.

We are 300 members strong. An order from your Legislative Committee immediately produces an official letter from the Central Organization, one from each of the five organized branches and at least 100 letters from individual members. We have the time and take it, where the doctor may be too pressed. Orders from other committees will receive like response.

Our contacts are continually enlarging the calls being made upon your speakers' bureau, thus helping to spread information as you have decided it should be spread.

Always there will be an ear to the ground of every Woman's Club, to guard and guide their programs toward a better understanding of the high ideals of organized medicine.

Programs will be planned, in conjunction with your advisory committee to the Auxiliary, promoting whatever ideas you think vital for the continued instruction of the public.

A group of Auxiliary members will be developing their own knowledge of scientific medical advances at the Century of Progress, as suggested by Doctor MacKechnie, and passing that information on to the visitors at your Booth.

Specifically: each branch will be encouraged to develop friendship and ployalty—to increase their membership by whichever method, educational, philanthropic or entertainment, that will draw and hold the most individuals in their section.

We are hoping that orders will go out from the Chicago Medical Society Council recommending to presi-

dents and secretaries of the ten branches still unorganized by the Auxiliary, that auxiliaries be organized in those districts. We have much organizing yet to do before we can offer a united and city-wide support.

Each member will be asked to inform our Public Relations Chairman of the name of the program chairman of all organizations with whom she is connected.

Every member will be kept informed of the work being done by the Auxiliary.

I can only say—a constant effort is being made to demonstrate our ability to be of service to you and to prove that every member's wife, in joining us, helps you.

In conclusion, we want you to know that we have definitely established in our own minds the fact which we hereby present to you. Our pride of being and our only duty lies in developing whatever plans the Chicago Medical Society promulgate for the benefit of humanity and the profession.

We thank you.

Much more could have been said. I am especially sorry I did not speak of our placing of *Hygeia* in an ever widening territory and of our faith in it as a means of informing the laity, but we—Mrs. Cole and I—were each limited to five minutes and though little can be said in so short a talk, still, perhaps five minutes was exactly the right amount of time for our Maiden Speech before the Medical Society. Anyway we were recognized and we are glad.

During the course of the session that followed our remarks many references were made to the possible usefulness of the Auxiliary and already plans are being developed toward our greater usefulness.

We look forward to a year, vitally interesting, and plan to walk over with a careful regard to our place as—The Woman's Auxiliary to the Chicago Medical Society—and a true understanding of our objects.

Sincerely yours,

Maude H. Wolfer, President.

(Mrs. John A.)

#### REPORT OF THE ADVISORY COMMITTEE OF THE CHICAGO MEDICAL SOCIETY ON THE MEDICAL CARE OF THE INDI- GENT AND RECIPIENTS OF UN- EMPLOYMENT RELIEF

Charles H. Phifer, M. D.

In presenting a report of the Advisory Committee of the Chicago Medical Society on the Medical Care of the Indigent and Recipients of Unemployment Relief, it appears to me that while the motives of this committee are very definite, it has a distinct economical feature in that it provides compensation for the medical care of people on relief. Its activities differ somewhat from those of the Committee on Medical Economics, an excellent report of which you have just heard so ably presented by their Chairman, Dr. Herman L. Kretschmer. This fact should, however, be borne in mind—that many of the unemployed, particularly the ambulatory cases, are referred to established clinics for medical care and in that manner these patients are of interest to both committees.

It is my opinion that few physicians or laymen realize the large number of people who have been left destitute by the financial depression through which we are passing, and that the State of Illinois is confronted with the greatest social and economical problems in its history. Outstanding among the latter is the question of unemployment. Particularly is this true in Chicago. It was to provide funds for the existence of these people and to administer to them equitably that the Illinois Emergency Relief Commission was formed.

In order that you may better understand the effect that this depression has had upon the financial status of this metropolitan area, and help you to realize to what degree we are confronted with the question of unemployment and low wage incomes, also that both of these constitute the basic factors in studying the subject of medical economics in this community, I invite your attention to a few statistical slides for your information relative to this condition in Cook County:

ILLINOIS DEPARTMENT OF LABOR  
INDEXES OF EMPLOYMENT AND PAYROLLS  
IN CHICAGO

Manufacturing Industries (1925-1927=100)									
Employment									
	1927	1928	1929	1930	1931	1932	1933	1934	
January	101.1	92.9	95.1	97.4	77.2	61.9	49.2	60.8	
February	101.7	94.7	96.3	96.4	76.6	61.0	49.7	..	
March	101.2	94.1	97.2	94.0	75.7	59.5	48.2	..	
April	100.9	93.3	97.8	90.9	74.3	56.5	49.3	..	
May	100.5	94.3	100.0	89.9	72.8	55.9	51.1	..	
June	102.1	96.3	100.7	88.0	70.5	55.4	53.4	..	
July	98.9	94.2	100.7	84.7	68.3	51.0	56.7	..	
August	99.0	95.1	101.7	83.1	68.4	53.0	64.0	..	
September	97.3	95.2	102.1	81.0	66.6	53.4	65.3	..	
October	98.2	96.3	101.0	79.5	64.6	53.3	65.6	..	
November	96.9	95.9	101.2	77.4	62.8	51.8	63.0	..	
December	95.2	96.5	99.2	77.9	63.6	49.8	60.9	..	
Yearly Av.	99.4	94.9	99.4	86.7	70.1	55.2	56.4	..	

ILLINOIS DEPARTMENT OF LABOR  
INDEXES OF EMPLOYMENT AND PAYROLLS  
IN CHICAGO

Manufacturing Industries (1925-1927=100)									
Payroll									
	1927	1928	1929	1930	1931	1932	1933	1934	
January	97.0	85.6	95.5	92.9	62.5	44.6	28.4	39.8	
February	101.0	90.6	99.5	93.0	62.7	41.8	28.6	..	
March	99.5	89.3	99.4	88.2	61.7	39.3	25.7	..	
April	99.0	88.9	100.5	86.0	59.8	35.9	26.4	..	
May	98.6	91.0	102.7	83.1	57.3	34.4	29.3	..	
June	102.8	95.4	104.9	79.6	55.6	33.5	32.3	..	
July	97.9	91.3	103.4	74.3	53.3	29.0	35.2	..	
August	98.8	96.6	105.1	73.2	53.5	31.6	39.5	..	
September	93.4	97.2	104.2	71.4	49.1	32.0	39.9	..	
October	96.1	97.2	103.9	68.8	47.2	31.4	39.4	..	
November	93.3	95.5	100.9	64.2	43.8	28.5	37.5	..	
December	92.1	97.4	98.6	63.8	45.7	28.3	37.3	..	
Yearly Av.	97.5	93.00	101.6	78.2	54.4	34.2	33.3	..	

The effect of the industrial crisis on the financial status of the people of Cook County may be obtained by reviewing the following figures, which will show

the number of people unemployed and on relief during the past two years:

January, 1932	124,000	families or	558,000	persons
March, 1932	134,000	"	603,000	"
August, 1932	114,000	"	513,000	"
October, 1932	161,000	"	724,000	"
November, 1932	170,000	"	765,000	"
December, 1932	180,000	"	810,000	"
January, 1933	160,286	"	721,287	"
February, 1933	190,000	"	855,000	"
March, 1933	175,282	"	788,769	"
April, 1933	171,723	"	772,753	"
May, 1933	163,496	"	735,732	"
June, 1933	144,825	"	651,712	"
July, 1933	129,642	"	583,389	"
August, 1933	116,777	"	525,496	"
September, 1933	106,822	"	480,699	"
October, 1933	104,078	"	468,351	"
November, 1933	108,434	"	487,953	"
December, 1933	110,370	"	496,665	"
January, 1934	81,296	"	365,832	"
February, 1934	74,547	"	335,461	"
March, 1934	83,899	"	377,545	"

In regard to the last slide you will note that during the latter part of 1933 and the first part of 1934 the number on the Illinois Emergency Relief Commission roll was reduced somewhat by governmental projects such as the CWA, but this fact should be borne in mind that the wage scale awarded to this class was so low that in most instances it was necessary in the event of illness for this group to be transferred to the roll of the Illinois Emergency Relief Commission for medical and hospital care. Since abandonment of the CWA program the unemployment roll has increased 30 per cent during April and we are again at or near the peak load of the past.

ILLINOIS DEPARTMENT OF LABOR  
INDEXES OF EMPLOYMENT AND PAYROLLS  
IN CHICAGO

Manufacturing Industries (1925-1927=100)									
Employment									
	1927	1928	1929	1930	1931	1932	1933	1934	
Yearly Avg.	99.4	94.9	99.4	86.7	70.1	55.2	56.4	..	
Payroll									
Yearly Avg.	97.5	93.0	101.6	78.2	54.4	34.2	33.3	..	

EXPENDITURES OF ILLINOIS EMERGENCY RELIEF IN STATE OF ILLINOIS	
1929	\$ 2,714,000.00
1930	3,742,000.00
1931	13,440,000.00
1932	37,000,000.00
1933	79,107,935.79

In this slide I present a summary of employment in Chicago for the years 1927 to 1933, inclusive, likewise the payrolls in this district over the same time. I also tabulate for you the expenditures of the Illinois Emergency Relief Commission in the State of Illinois covering the major part of this period. A careful study of the correlation of these figures with reference to unemployment and the demands upon the Relief Commission is most interesting. One should realize that prior to the industrial crisis in 1929 not one per cent was voted for tax, either Federal or State, for the care of the indigent or unemployed in the State of Illinois. Any money spent in this connection was through adjustment by town or county in taking care of



their indigent. In Cook County the appropriations for this type of relief was in the neighborhood of \$600,000 per year. Very early in the depression the financial budget in Cook County became so great that it was necessary for the State and Federal Government to take over a part of this responsibility.

The amount of money allotted per month to families on relief by the various agencies is also an item that is greatly misunderstood. In Illinois during 1933 there were 300,000 families or 1,300,000 persons on the relief roll of the Illinois Emergency Relief Commission. Of this number over 853,000 were in Cook County, or about one out of four of the total population of Cook County on relief. It was this staggering responsibility that compelled curtailment of expenditures. I am therefore presenting this slide for the month of April, 1934, to give you an idea of the amount of direct relief allowed per family:

DIRECT RELIEF IN COOK COUNTY DURING  
APRIL, 1934

Illinois Emergency Unemployment.....	\$29.00
Cook County Bureau Field.....	28.31
Central Charity .....	26.46
United Charity .....	35.63
Jewish Social .....	37.22
Salvation Army .....	21.74
American Red Cross.....	27.94
Total Average Relief per family for April.....	28.91

In discussing this slide I wish to state that the monthly relief of the Illinois Emergency Relief Commission varies some, according to the seasons of the year and the necessity for additional obligations, such as clothing, stoves and fuel. Over a great period of this time the average relief during the month was approximately \$21.66 per family, or \$5.04 per person. This \$5.04 included not only food but also what payments may have been made for rent, clothing, medical care, etc. Free visits made to private and public clinics averaged one visit by one person during the month for each eight persons on relief.

These slides reveal the size of the great army of unemployed in our community. Among these are patients who previously paid all of us money, who are now without work and funds, who are on relief and for whom the medical profession is endeavoring to render medical care at a rate commensurate with the amount of relief funds available.

It was facts of this nature that prompted your speaker in July, 1933, to appoint the following members of the Advisory Committee of the Chicago Medical Society on the Medical Care of the Indigent and Unemployed:

Dr. Edward H. Ochsner, Chairman  
Dr. Hugh N. MacKechnie  
Dr. Julius H. Hess  
Dr. James H. Hutton  
Dr. Guy M. Cushing  
Dr. Charles H. Phifer

I felt that all of these men would be of value to us, first—because they were physicians with broad experience in the problems of the practice of medicine; second—they were all interested in civic work; third

—they were reliable; fourth—they would devote the necessary amount of time in the interest of the study of the question of the medical care of the indigent and unemployed; and fifth—they would try to provide a plan whereby these cases could be referred to their family physician for medical service for which he would be compensated.

Your committee had several conferences with Representatives of the Council of Social Agencies, the Cook County Bureau of Public Welfare and the Council of the Illinois State Medical Society relative to this subject. About this time Rules and Regulations No. 7 was adopted. Two of us, Dr. Julius H. Hess and myself, were appointed by the Council of the Illinois State Medical Society as members of the Advisory Committee of the Illinois Emergency Relief Commission, in which capacity we made a thorough study of all the plans in the different states and helped to draft the Illinois Plan. The latter was adopted by the Illinois Emergency Relief Commission on January 19, 1934. The same day Mr. Wilfred S. Reynolds, Director of the Commission, authorized me, as President-Elect of the Chicago Medical Society, to put this plan into effect in Cook County.

The Chicago Medical Society immediately, either by bulletin or circular, apprized every physician in Cook County of this plan and of their opportunity to register for this medical service. As a result 1800 physicians filed their application. Of this number about 50 per cent were members of the Chicago Medical Society. About 400 of the total number were eliminated by means of a questionnaire by the Commission.

The Relief Commission required about 6 weeks to reorganize, enlarge and transfer its administrative department to meet the requirements of a medical service of this magnitude. Assignment of calls to physicians who had registered for service began on March 12th and by March 20th all calls were referred to these physicians.

In order to give you some idea of the amount of work that is being referred I wish to present these facts for the months of April and May, 1934:

MONTH OF APRIL, 1934

Report of the visits made by physicians cooperating in the Emergency Relief Plan for home care:

	Number	Amount
Home Visits .....	10,227	\$15,340.50
Obstetrical Care .....	25	375.00
Office Visits .....	86	86.00
Total .....	10,338	\$15,801.50
Total Payroll for April.....		\$15,801.50

MONTH OF MAY, 1934

	Number	Amount
Home Visits .....	11,062	
Obstetrical Care .....	52	
Office Visits .....	130	
Total .....	11,244	
Total Payroll for May.....		\$16,841.00
Total Payroll for April and May.....		32,642.50

In behalf of the Illinois Emergency Relief Commission I would like to state to those of you who have experienced delay in receiving your remuneration for



the service that you have rendered that this was necessitated by a change in the accounting system. Books were previously kept on a budget basis. During the past few months funds are being received from the 30 million dollar bond issue and they must be computed on the amount of money allocated to municipalities.

I was informed on May 31st by Mr. James E. Foster, Director of Information Service of the Illinois Emergency Relief Commission that items are now being handled within 25 days after they are received by the Commission. This period includes the time from the receipt of the item by the Commission to the mailing of the warrant by the State's Auditor's office. Also that they do not pay for services to physicians who have not made application for relief service.

I wish to state in behalf of our Committee that they are all of the opinion that the profession is also entitled to compensation for office and hospital service. We favor expanding the list of hospitals authorized for this service. In all of these questions your Committee has made a constant, courageous and valiant fight to have these principles endorsed for the profession. We are also cognizant that this project like all governmental affairs has a certain amount of uniform regulations to conform with. This to some doctors seems cumbersome and unnecessary. Particularly is this true relative to the question of authorization of papers. Frequently these cause some disturbance due to the fact that if the client goes to the Emergency Relief station he is given the papers, but in the event that he or some member of his family or neighbor telephones the call then the authorization papers are mailed to him which may bring a hardship on the part of the physician in having it authorized. Some of these difficulties have been adjusted. It is to be hoped that as the Commission corrects them, and the physician and the Commission become better acquainted with the necessary procedures that there will be less trouble and that he will appreciate the efforts of the Commission's administration to cooperate. We solicit your indulgence in meeting their requirements.

As a member of this Committee, I wish to tell you something about its activities. (1) We have held a meeting every two weeks; (2) the attendance has been 100 per cent; (3) since the adoption of the Emergency Relief Plan this meeting has been a joint conference with the representatives of the Illinois Emergency Relief Commission at which time all complaints and business pertaining to the improvement of the service are freely discussed. We receive an itemized statement every thirty days from the Commission which shows the number of calls made, to whom they were referred and the number to each physician.

It is our impression that the Commission appreciates the service and the cooperation of the profession in the care of the sick on relief and are endeavoring to function with the Chicago Medical Society in improving the details of the organization plan.

We have recently requested the Commission to reopen the registration. This has been granted, thus making the service available to others who did not register previously.

In closing I wish to express my great appreciation to the members of this Committee for their loyal cooperation, their good counsel, broad vision, and the many sacrifices they have made in the cause of the profession as well as the people on relief. I am likewise very grateful to the representatives of the Illinois Emergency Relief Commission and the Council of Social Agencies for their timely and constructive aid.

*Bulletin Chicago Medical Society*

#### NICOTINE IN BREAST MILK

Excessive smoking should be forbidden the nursing mother, due to possible unproved effects upon the digestive process of the child, according to William Benbow Thompson, M. D., Department of Pharmacology, University of Southern California School of Medicine, who has reported experiments demonstrating the elimination of nicotine from lactating breasts.

While opinions as to the effect of nicotine upon growth vary widely, the author says:

"... It seems logical to consider that even minute quantities of nicotine administered through breast milk might upset digestive processes to the extent of endangering the early growth of delicate babies."

Limitation of smoking purely upon the number of cigarettes consumed daily can have but little value in Doctor Thompson's opinion.

In summary he says:

"The elimination of nicotine by lactating breasts, confirmed by biologic tests, has again been demonstrated. From a review of available literature and from personal observation, it would appear that smoking in moderation probably is a minor factor in influencing lactation. While excessive smoking and adequate lactation usually are not noted in the same individual, as yet there is insufficient evidence to conclude that the one is the cause, the other the effect. Due to possible, unproved effects upon the digestive processes of the infant, excessive smoking should be forbidden the nursing mother. The impression, frequently recorded that women who smoke usually do so to excess would seem to be as inaccurate as impressions generally are."—*School Physicians' Bulletin*.

#### MAXIMS

Services that cost nothing are valued at that.

Stay out of your wife's sanctum and keep her out of yours.

In applying the principles of salesmanship to the practice of medicine, you need not discard all of your ideas of ethics and the nobleness of medicine. Keen business methods are entirely compatible with the honest conduct of your practice.

Do not become garrulous with patients. You simply multiply the chances of misinterpretation.

Remember that most patients are probably much more impressed by the appearance of your office than by your ability.

Be slow to make promises to patients. They may rise up to plague you later.

## Original Articles

### MEDICAL ECONOMICS—THE PHILADELPHIA PLAN

Results Accomplished—Medical Relief Under the F. E. R. A., and the C. W. A.

FRANCIS ASHLEY FAUGHT, M. D.  
Chairman Commission on Medical Economics,  
Philadelphia County Medical Society

PHILADELPHIA, PA.

If the physician is to hold his place in organized society, there must be a better planned unity, agreement and continuity of thought among doctors. Economic readjustments are in the making, and we must develop definite plans, because we have a definite responsibility in shaping this growth, and controlling these changes, particularly as they touch upon our sphere of activity.

I take it that the purpose of my visit here this evening is to further emphasize the necessity that every physician should become an economist, for, while we know that the specific problems presenting to any group or to any section of this country differ in their details, we are, nevertheless, convinced that there are certain very definite basic principles, which must be recognized and enforced throughout the country, for the purpose of combating specific evils, that have arisen, and which are even now threatening to destroy the economic stability and the professional efficiency of medicine.

It will be impossible for me in the time allotted to discuss adequately all the phases of medical economics; I shall, however, attempt to give you a picture of medical economics as a problem of the medical profession, and to tell you of some of the activities that have been instituted by the Philadelphia County Medical Society, and to cite some of the results that we have already accomplished.

Closing with some brief references to our relations with the F. E. R. A. particularly the far-reaching results which may come out of the use of F. E. R. A. funds for the payment for medical care of the indigent, together with a few words about our latest and as yet not completely delivered baby—the CWA.

My effort will be not only to impress you with

the seriousness and extent of the problems that confront us, but also to show you the need for prompt, persistent, but nevertheless well considered activity.

Speaking before the Philadelphia County Medical Society last Wednesday night, Dr. Frederic E. Elliott, Chairman of the Committee on Medical Economics of the Medical Society of the State of New York, said: "If the physician will not become an economist in his own domain, then he seems destined to yield his knowledge and skill to be the object of commerce, and communal experiment." This truism cannot be ignored. Organized medicine must take the lead, persistently, and fearlessly, and, which is more important, intelligently. Our aim should be to discover a way to assure that the private practitioner shall continue to give a good quality of sickness service to all classes including those unable to pay, and at the same time preserve to himself, and to the medical profession, the practice of medicine.

Efficient leadership in medicine has never been so greatly in demand as at the present time. Every organized group throughout the country should seek diligently to discover efficient leaders, and when they are found, to offer them every encouragement and support. There never was a time when medical organization was more important than today. Active and efficient committees on medical economics must be organized in every county. There is a job for every physician everywhere, and the work involves not only intensive study in order to discover existing evils, and to establish basic principles, for their restriction and curtailment, but also to constantly watch for those insidious forces that are even now trying to gain control of the practice of medicine, largely through some sort of manipulation of medical service, not for public benefit, or to aid the physician, but for personal profit. It remains for the medical profession to determine whether it shall be a lay dominated, politically controlled and paid organization, or whether it shall preserve medicine as a profession to physicians.

But we should never lose sight of the fact that the study of medical economics must be done with a great deal of care, avoiding preconceptions and without bias, and that the remedies for alleged infringements and abuses should be applied only after due deliberation, and even then



not with a view to making more money for the medical profession, whether it be the individual physician or a group. We must ever keep in mind the fundamental purpose of our profession, which is to give the best possible medical service to the public; any other program would surely infringe our principles of ethics.

It would seem unsafe, however, at this time to attempt to formulate, or promulgate rigid or drastic rules and regulations, because we have not yet completed our studies of the many interlocking phases involved in providing good quality medical care to all income groups. It would seem, however, certain that the problem consists of two distinct divisions, 1. To see to it that the profession as a whole maintains its high ideals and continues to equip itself to supply a highly efficient medical service. 2. To circumvent any and all efforts at "muscling in" by those who desire to commercialize us, but who have neither the right nor the experience to assume the responsibility for guiding or directing our highly specialized profession.

In order to accomplish these aims, we, as a profession, must be unified, prepared, informed and determined. To assure the continuation of efficient medical service, and to promote and preserve individual initiative, we must refuse to submit to lay control, whether it be political or philanthropic, and at the same time to present a united front in opposing all infringements and encroachments that are now seeking, or may seek, to modify or control our destinies through the introduction of commercial methods, exploitation or unfair competition.

If we shall succeed in doing these two things, we need not fear the future, for the practice of medicine will be preserved to the medical profession for all time. But we shall not accomplish this result if we fail to study and to investigate and to perfect our organization. It will require intelligent cooperation on a broad scale, in order to assure the public of adequate medical care, and at the same time to maintain those basic principles necessary to assure the continuation of the personal relationship between the patient and his private physician. This is the foundation stone of medical practice, and it must not be dislodged; to preserve it, we must develop co-operative medical endeavors of such a type that

initiative will not be destroyed, or compensation unfairly diverted.

We must not fear publicity—intelligent propaganda should be a powerful weapon in our hands. In the address already referred to, Dr. Elliott raised this pertinent question. "Shall we break the bond of tradition, and become articulate among the people whom we serve, or shall we in silent conservative dignity, permit others to profane our heritage, and exploit our labors?" There is but one answer—we shall—we *Must*. But, we must all agree concerning the nature of our publicity. This is but another reason why organization should be prompt and universal, and why local groups should be encouraged to exercise that self-government which is granted them under our National medical organization. It is the duty of the local organization to endeavor to control unfair competition, to prevent exploitation, to combat illegal encroachments upon the professional field, and to insist upon strict adherence to our code of ethics by all members,—these are the fundamental requirements of the County Medical group, and which are essential to the preservation of an individualistic, progressive, and competent medical profession, which alone will preserve for the public, and the profession alike, our economic stability.

It is not sufficient to develop a series of more or less isolated, but nevertheless efficient independent units,—these must become united and consolidated in order that we may gain the strength of numbers and the benefit of mass action. An increasing amount of valuable data is issuing from the Bureau of Medical Economics of the American Medical Association, but because of the diversity of conditions throughout this country, this bureau cannot be expected to provide detailed advice to fit the conditions in widely separated areas. This is the function of the County Medical Society, and initiative should start there. The more powerful County Medical Societies should make every effort to contact and consolidate surrounding counties, where, because of lack of initiative, or where a close organization may be difficult to obtain because of the large surface area of thinly settled counties. The consolidation of a few well organized active county medical societies, can in turn do much to influence the State organiza-



tion, a not unimportant effect, because we know that some State medical societies because of their political affiliations, or because some of their officers and trustees are engaged in contract practice, or other forms of medical practice, the ethics of which is open to question, are loathe to take the lead.

But there can be no different standards in medical practice. What is right for the little known general practitioner, should be equally right for the leaders of the profession. Dr. Leland has recently said, "The kind of medical ethics to which we have always subscribed, which we believe are good for the individual, and which we try to apply to the individual physicians in private practice, is certainly a good type of ethics to apply to groups, and to county medical societies."

We have all glibly used the term, "medical economics." I am not so sure that we all know what we mean when we employ this expression. If we accept the commonly applied definition of economics, we find that it is the science which deals with the production, distribution and exchange of things with a tangible value, i.e., wealth; and that while originally, this word was generally confined to a discussion of tangible commodities, there has lately been a tendency for economists to include professional services such as furnished by physicians, teachers, lawyers, etc. This is where the trouble first began, for we now know that any attempt to apply the same criteria to medical economics that are by common consent applied to general economics, where the chief factors are, production, distribution, consumption and demand, is impossible, and only leads to further confusion.

The subject of medical economics has assumed a prominent position, only within the past two or three years, and no one yet knows a great deal about it, but we are learning. The number of groups of physicians in various parts of this country, who are intensively studying the many phases of this subject, is rapidly increasing. Under the able leadership of Dr. Roscoe G. Leland, Chairman of the Bureau of Medical Economics, of the American Medical Association, rapid progress is being made in the elucidation of the intricacies of this subject. However, in spite of these activities the bulk of the profession is still floundering in a maze of uncertainty,

misapprehension and misinformation, while nevertheless attempting upon insufficient information and too little study, to suggest remediable measures for the control and correction of present abuses.

In all discussions of medical economics, it is important to bear in mind that one of the most, if not the most, distinctive characteristics of our service is that we do not distribute a material commodity, like food or clothing. It cannot, therefore, be separated from the producer, and hence it never enters into a market, in the same sense that material commodities do. Therefore, it is not subject to the same factors of supply and demand, etc., which influence the exchange of material wealth.

Hence, any theory that looks toward establishing market values for our non-material commodity, must not fail to take into account many important factors which vitally influence medical economics, among which, not the least, is the value of the service rendered; and this, *practical economists*, including those who wrote the final report of the Committee on the Costs of Medical Care, have failed to do.

It would seem, therefore, not only futile, but dangerous to apply the definition of general economics, to medical economics, for the reason that medical economics is that branch of general economics which deals with the production, distribution, and consumption of the values involved in medical services, chief among which is the sum total of medical knowledge possessed by the medical profession, and which cannot be measured by the yardstick of commerce.

It may be accepted, therefore, that the practice of medicine does not fit into the picture of general economics, and that any attempt to force it to conform to the same frame will not only result in great confusion, but if carried to a logical conclusion, will result in untold harm to the public and to the medical profession, by causing deterioration of the character of medical service rendered, and by depressing still further our already greatly reduced income.

This danger should be emphasized, because of the persistent effort in many quarters to apply the yardstick of industry to the practice of medicine. We frequently hear it argued that the large investments in buildings and equipment now considered essential in providing adequate

medical service, is a valid reason for lay participation in the management and control of medical service. Since this comparison is wholly unjustified, it must follow that any argument resting upon it is untenable.

The pamphlet "An Introduction to Medical Economics" recently issued by the A. M. A. defines the real or social capital of medicine as, "the steadily growing body of knowledge, rather than the increasing value of the investment in hospital clinics, or laboratories." This is stored in the publications, minds and traditions of the profession, and is transmitted through universities, journals and clinics to the individual physician." "The profession itself is the owner and custodian of this vast mass of wealth. It cannot be individually monopolized for profit. Any attempt to so monopolize it, violates the ethics and the morals of the profession, and meets with the severest condemnation and professional outlawry. Separated from this body of knowledge, the physical capital is worthless." If this be true, then it is obvious that the domination and control of personal scientific and professional capital must forever be maintained by the medical profession; to permit its escape would be professional suicide. It is imperative, therefore, that any program which has for its purpose the preservation of the medical profession for itself and for the public good, must be the result of careful study and must conform to carefully laid plans by a unified profession. Any thoughtless, hasty or needless changes in traditional medical practice, will work untold harm.

The organized and unified medical societies of this country must be maintained, as they are the only responsible corporeal custodians of this body of knowledge. We as physicians must guard, preserve and increase it, for it is not only our right, but also our duty to the community to insist on maintaining and exercising full control over this knowledge, which is the basis of every form of adequate medical care. There is no room for lay control, or the introduction of the middle-man. Were this not true then the natural evolution which has been going on throughout the ages, and which has altered from time to time, the relations between employer and employee, and between merchant and capitalist, would have influenced the relation between physician and patient. We all know there has been

no change in this relationship, and we believe that any attempt to change it, through a re-writing of our code of ethics, or by the introduction of untried theories, or the application of commercial methods into the field of medicine, will result in serious harm to professional standards, and will stifle progress in medicine.

We are now passing through a period of great stress, in which many sinister forces have combined in an attempt to overthrow the basic tenets of our profession, to throw our ethical standards into the discard, and to substitute and insinuate various types of lay management and control, some of which have already resulted in serious encroachments upon the professional field. As an example of this I might mention the notable example of the nurse anesthetist; also the transition of the activities of health departments from their basic function of the mass control of disease to that of the individual control and treatment of disease, as by campaigns for vaccination, diphtheria immunization and the like.

We have been criticized in high places ("Mr. Kingsbury Speaks for the Milbank Fund,"<sup>1</sup>) as obstructionists for daring to object to and refusing to adopt proposals projected in Vol. 28, "Medical Care for the American People," the final issue of the Committee on the Costs of Medical Care. We have also been accused of professional selfishness, and a desire to protect our own economic interests at the expense of others, rather than be given credit for our altruistic and humanitarian motives, which involve the greatest good to the public that can be offered by a thoroughly conscientious and highly trained profession.

Early in this study it became evident that in Philadelphia one of our most important activities would be to combat efforts to introduce quasi insurance schemes, various forms of advertising, and solicitation by interested third parties, in the marketing of medical services, as there was even then a distinct tendency on the part of some of our institutions to employ full time men in the radiological department and in the clinical laboratory, and to appropriate some of the income derived from their services to the payment of non-professional salaries and maintenance. Among the many evils arising out of these contracts, we

1. J. A. M. A., 101: 1395, 1933.



particularly objected to any attempt to interfere with the free choice of physician and to disturb "this personal confidential arrangement between patient and physician, in the marketing of medical service, which is equivalent to harmful, adulteration of our commodity \* \* \* of priceless value."

It is a well known fact that when physicians show opposition to interference in their affairs by outside interests, which propose to introduce commercial methods of advertising and solicitation, into the field of medical services, we are almost invariably misinterpreted by the public; despite this, we should not be discouraged, for we believe that properly approached, the public can be made our allies in this campaign; therefore, we strongly advise that a Nationwide, carefully thought out and continuous campaign of information disseminated through the press, on the rostrum, and over the radio should be staged, if we shall hope to succeed in disabusing the uninformed public of the idea that we have the slightest ulterior motive in urging the continuation of that most necessary personal relationship which now exists between the patient and his individual physician, and to show them that our opposition to all these new departures is primarily in the interests of the sick, and not an attempt to fatten our pocketbooks. We must show them that these commercial schemes, without exception, will result in forcing upon the public a cheapened medical service, and that advertising, solicitation and all forms of selling compulsion, are barred by medical ethics.

We must also, in no uncertain terms, show that the introduction of a third party, by the adoption of insurance schemes and the diversion of the profits accruing from medical service, instead of reducing the cost of medical care, will actually increase it. We must drive home the fact that all forms of contract practices, group insurance, etc., are not only unethical, but if adopted will at once increase the cost of medical care and reduce the quality of this service.

These are some of the reasons, among many others which might be mentioned, but which for lack of time are here omitted, why the organized medical profession must insist in the interest of public welfare, that no other plan than the professional control of all medical services will protect the public health, and maintain those quali-

ties in medical practice that the patient wishes to purchase, and is entitled to receive.

Now for a moment let us consider the low income class, around which most of the controversy concerning the problems of medical economics and ethics has centered, and from which there has developed an increasing tendency to organize free clinics, insured hospital care, infant and maternity welfare, extension of health department and public health service, health insurance, group practice and contract medical care, and which comprise the majority of harmful encroachments with which we must cope.

It should be necessary merely to mention the fact that all these efforts to supply a more adequate medical service to those unable to afford it, is not the problem of medicine, although we have voluntarily shouldered this burden these many years.

Neither is it our province to teach the spendthrift public to budget for medical care; although they should be shown that it is of more vital importance to the welfare of the average family, to provide for adequate medical care, than it is to purchase ice machines, radios, automobiles, etc. For it can be shown that much of the inability of this group to pay for medical service is the direct result of the successful efforts of high pressure salesmen to place these products in the homes of persons whose incomes do not warrant their acquisition. We believe that more benefit would have resulted from investigations of the high cost of merchandising, of banking, or of the law, than can ever come from the millions already squandered in an effort to prove the already disproved fiction—the high cost of medical care.

In the lowest income brackets and in the absolutely poor and temporarily indigent, the problem is not ours, but is a community, State and National affair. As has been well said, "these are economic, rather than medical problems, and their solution should not be sought exclusively through reorganization of long tested and approved forms of medical practice, while the industrial and economic conditions responsible for the insufficient incomes is entirely ignored."

Big business carefully ignores this obvious fact, when it attempts to discuss these problems; at the same time, attempting "to force the patterns of the industrial organization responsible for



these evils on medical practice, in the hope of alleviating industrial evils."

Our members should ever bear in mind that medical economics is more concerned with the medical, than with the economic effects of medical service, and that up to the present time, in every country, where the industrial organization has succeeded in introducing these so-called reforms, it has not produced the results expected. An outstanding example exists in England, where we learn from good authority, over 100,000 persons, who formerly received the benefits of compulsory health insurance, have during the past year, because of unemployment, ceased to receive the benefits under this plan.<sup>2</sup> Furthermore, the profession of medicine in England is rapidly passing into the hands of the money lenders, because young practitioners have been forced to borrow for equipment, and sustenance against their expected future income, and they are even now paying the exorbitant rate of 40% interest annually on the funds borrowed, with little chance of ever repaying the principal.<sup>3</sup>

I have attempted thus far to show that the basic principles of medical economics is not acquisitiveness; for so far as I know there has never been a millionaire doctor who attained this distinction through medical practice alone, and also that medical economics involves the application of the broad policy of maximum benefits to our neighbors, the public who surround us, and who in time of illness need us, and the re-creation and maintenance of their confidence and goodwill. In the opinion of the Committee on Medical Economics of the Medical Society of the State of New York, "high-class efficient service must be provided, and the public must be happily impressed with this service. It must not only *be*, but also *be recognized as* adequate, complete, humanely kind, earnest, interested, and obtainable at a cost reasonable to and negotiable by the persons served. The public—our neighbors—must be given what they need, and intellectually led to like it, by men whose consideration of self-gain or self-aggrandizement, is never obvious or obtrusive. However, every civilized person knows that such service costs money, time, train-

ing and equipment, and therefore, must be adequately rewarded."

#### THE PHILADELPHIA PLAN

The Philadelphia County Medical Society first came to a realization of the dangers that beset us in the Summer of 1932, and had already organized and laid the groundwork for an intensive study of the entire subject before the appearance of the final report of the Committee on the Costs of Medical Care.

Our first step was to develop data regarding the conditions of private medical practice in Philadelphia; this was accomplished by two means:

1. The circulation of a questionnaire to our members, and
2. A campaign of education for our members, carried by a group of carefully instructed speakers, to as many of the forty-five odd medical societies that meet in Philadelphia, as could be persuaded to put one of the speakers on their program.

As soon as we felt that we had acquired the necessary information, and had transmitted at least some of the basic facts regarding medical economics to the physicians of Philadelphia, the President appointed a Committee on Medical Economics, composed of three members, which in turn appointed a number of sub-sections, or committees to investigate specific phases of medical economics; these committees were:

Section on Workmen's Compensation;

Section on Co-ordination of Medical Services (to investigate the relation between the hospital and the physicians in community);

Section on Dispensary Abuse and Social Service Departments;

Section on Hospitalization Abuses;

Section on Medical Representation on Hospital Boards;

Section on Free Information Service to Insurance Companies;

Section on Counter Prescribing & Drugstore Abuse;

Section on Health Department Cooperation;

Section on Lay Cooperation & Education;

Section on Contract Practice;

Section on Encroachment of Lay Workers on the Professional Field.

Note: Since the preparation of this paper, the following additional Sections have been appointed:

Section on Hospital Staff Cooperation;

2. J. A. M. A., 101: 720, 1933.

3. J. A. M. A., 101: 1572, 1933.

4. Annual Report, 1931. N. Y. State J. of Med. 32: 490, 1932.

Section on Modification of Curricula in Medical Schools;

Section on Cost of Nursing Care;

Section on Hospital Economics.

Each Section was chairmanned by an energetic, active and efficient member of our Society whose contacts indicated his value in the particular field of investigation assigned to his committee.

Each Chairman was supplied with the names of a number of men available for appointment to his committee, although he was not restricted to those suggested by us, and there have been many valuable additions to some of these committees. At the present time the total effective working personnel of these groups total over 50.

This is our plan. The Committee, later changed to the Commission on Medical Economics, with a tenure of office of three years, meets monthly and serves as a clearinghouse for reports and proposed activities of the sub-sections; to each of whom it acts in an advisory capacity, guiding their work, and frequently making suggestions for its accomplishment.

The Commission meets all the Section Chairmen, assembled at a round table conference monthly, at which each section chairman is called upon to report upon the work of his committee, and to offer recommendations and seek advice and information from the members of the group. Minutes of all meetings are carefully kept and are used as a guide to checking up on the activities of the individual committees.

The Commission submits to the Board of Directors of our Society a monthly summary of all activities of the previous month, and presents from time to time resolutions bearing upon some phase of the subject requiring executive action.

The Commission is financed by an annual appropriation from the funds of the society, and in addition, the Board of Directors appropriates varying sums for specific purposes, chiefly the publication of information bulletins, several of which I have brought with me for distribution this evening.

Time is too short to present in detail the results that we have already accomplished in Philadelphia. I would here mention, however, that we have completely blocked the launching of two hospital insurance schemes, and it is probable that no further effort of this kind will ever be made in Philadelphia. We have succeeded in

obtaining cooperation from many of the larger hospitals in restricting admissions to the dispensary, to those unable to pay for the services of a private physician. We publish from time to time in the "Roster and Medical Digest" a list of these hospitals under the caption "The Hospital Roll of Honor Relating to Dispensary Abuse." I am pleased to say that we have already enrolled two-thirds of the larger hospitals. In several hospitals we have succeeded in having one or more members of the staff appointed to the Board of Directors, and we are now engaged in organizing local hospital economic committees; these we shall call together from time to time for instruction in medical economics and to discuss the many problems touching upon hospital management.

We are also urging the organization of an anesthesia department in each hospital, as required by the American College of Surgeons, under the supervision of a trained anesthetist, and manned by physicians—we have already made some progress.

Upon the suggestion of the Commission on Medical Economics, our Board of Directors has set up a Medical Court of six members, whose duty it is to investigate all forms of contract now existing, or at any time to be entered upon, between individual physicians, and hospitals, industrial organizations, etc., and whenever there is found evidence of unfair competition or exploitation of the physician, or when unethical conduct is discovered, this Court reports its findings to the Board of Directors with the recommendation that the offending member be referred to the Board of Censors for action.

In the bare seven months that have elapsed since the approval of information bulletin No. 2 "Principles & Practice of Medical Ethics," we have accomplished much, and it is the feeling of the Commission that we are already well ahead of our schedule.

#### FEDERAL EMERGENCY RELIEF ADMINISTRATION

The Act of Congress of June, 1933, made Federal funds available for various forms of emergency relief. The Federal Regulations promulgated June 23, 1933, made this fund available to the several States. In this Regulation it was provided that "Grants made to the States from Federal funds under the Federal Emergency Re-



lief Act of 1933 may be used for the payment of medical attendance and medical supplies for families that are receiving relief. \* \* \* "These funds may not be used for the payment of hospital bills \* \* \* or for providing general institutional care."

The Federal Regulations known as No. 7 issued early in September, specifically directed that "the policy adopted shall be to augment and render more adequate, facilities already existing in the community, for the provision of medical care \* \* \* to indigent persons," and also the "continuance in the use of hospitals, clinics, and medical \* \* \* services already established in the community and paid for in whole or in part from local and/or State funds."

The Philadelphia County Medical Society immediately sought to assure the application of some of this fund for the payment of Philadelphia physicians for services rendered to the indigent, but encountered much difficulty, and what appeared to be definite opposition to our endeavors. This was due to the political situation in Harrisburg, and, also, so we were informed, to the fact that no State funds were available to match Federal funds.

All this was very disappointing, in view of the fact that we knew of the successful operation of the temporary emergency relief program in New York State, beginning in February, 1933, and in New Jersey some months later. Eventually we were told that this plan would be impossible of operation in Pennsylvania, until an amendment to the Constitution should be voted upon favorably at the November election, which should permit the State to allocate funds to match Federal funds for emergency relief. This amendment was passed by a large majority on November 7, 1933.

I shall not burden you with any discussion of the Rules and Regulations contained in Pamphlet No. 7 issued by the Federal Government, but will proceed immediately to a brief outline of the situation in Philadelphia.

Much correspondence and many conferences preceded the announcement received from the Advisory Committee of the State Emergency Relief Fund, that funds would be available as of December 1, for use by those counties that had complied with the Regulations. These basically involve the control of the distribution of the

funds through the Philadelphia County Relief Board, operating under the advice and counsel of the County Medical Society, Medical Advisory Committee of the Philadelphia County Emergency Relief Board. Certain difficulties prevented the actual operation of this plan before December 15. The important points of these regulations which were published in full in the *Weekly Roster & Medical Digest*, the official organ of the Philadelphia County Medical Society on December 2, 1933, page 411-418, are as follows:

1. A State-wide and uniform policy for providing adequate medical care in the home.
2. Agreement by the Relief Administration to recognize within legal and economic limitations, the traditional family and family physician relationship, together with the traditional physician nurse relationship, in the authorization of bedside nursing care, and also, the traditional dentist patient relationship.
3. An agreement by the physician who must be a legal practitioner of medicine, the nurse or nursing organization, and the dentist, to furnish the same type of service to the unemployed beneficiaries as would be rendered to a private patient;
4. Provision that such authorized service "shall be a minimum consistent with good professional judgment, and shall be charged for at an agreed rate, which makes due allowance for the conservation of relief funds.
5. The interpretation of the phrase "in their homes" to include office service for ambulatory patients.
6. The limitation of the total payments for medical services to the acutely ill, to \$20 distributed over a period of two weeks, with a less sum for the total care of chronic cases covering a period of two months.
7. Eligibility for relief payments for medical care is determined upon the basis that the indigent person be on food relief.
8. The funds may not be used to pay hospital bills, or for payment of general institutional care, neither is any provision made in Pennsylvania for consultation fees in larger amount than those permitted the general practitioner.
9. Obstetric care is authorized which includes both pre-natal and post-natal attention, the total payment for the service including delivery not to exceed \$20.

A study of these regulations, and their comparison with Regulations No. 7 above referred to, will indicate that the State has taken advantage of certain options, which do not permit the physicians of Philadelphia to receive all the benefits possible under the basic regulations. Here, I shall amplify by calling to your attention certain comparisons best brought out by quoting from the original instructions for handling medical relief issued by the Philadelphia County Relief Board on December 15, 1933, which through



pressure brought to bear by our Philadelphia County Medical Advisory Committee were modified to eliminate some of the objectionable features.

**Eligibility:** Relief. Payment of medical relief is only authorized to persons receiving relief from the County Relief Board at the time of illness. This relief must include food orders. There is no exception to this, except that clients on the County Relief Board, medical relief, who may become ineligible for food orders during the illness, are considered eligible for County Relief medical relief during the period prescribed by State Regulations.

**Medical Resources:** This regulation avows the determination to continue the use of hospitals, clinics, medical services, etc. On the other hand, it expresses a desire to restore the normal family-physician relationship which formerly existed, and instructed the visitor or nurse "to inquire carefully into the 'custom' of the family in this respect." The ambiguity of this regulation was obvious, and we objected to the use of the criterion "*custom*" to determine whether the client on relief should receive private medical care. We succeeded in having this changed so that "*custom of the family*" was eliminated, and "*desire of the client*" to employ a private physician, substituted. Under the same heading, an effort was made to introduce the following, "An Ambulatory patient is eligible for County Relief Board medical relief, when his family has had private medical care, and has not had recent (within 6 months) clinic contact." Strong objection was made to the six months proviso, and we succeeded in obtaining this alteration, "Recent clinic contact" shall be interpreted to mean that a patient with an acute illness is still attending the clinic. All other patients to be considered as not having had a recent clinic contact.

In the original regulations we also objected to the paragraph which tended to emphasize that the patient should apply to a clinic, and succeeded in having lay workers and investigators including nurses, instructed to emphasize that the patient shall consult the physician of his choice. We also objected to Item 3, which directed in part that "an ambulatory patient whose *family* has had recent clinic contact, is not eligible for county relief board medical relief, and shall be referred to the last clinic contacted."

We could see no reason why the clinic contact of one individual should involve the whole family, and succeeded in having this unfair regulation modified by the elimination of the word "*family*," substituting the word "*individual*" whose status should be determined by the modified regulation above referred to.

At first the City physicians or "poor doctors" paid by the city, but also in private practice, were barred from participating in County Relief Board medical relief. We succeeded in having this Regulation modified, so that anyone who had been the private patient of a city physician prior to January 1, 1933, could be treated by him if indigent, and receive compensation for the service.

We believe that as the result of the activities of the Philadelphia County Medical Society Advisory Committee, we have been able to return to the doctor considerably more income than would have been his under the original regulations, but we are not yet entirely satisfied even with the modified regulations, for the following reasons:

1. In Pennsylvania reimbursement for medical care for acute illness is limited to \$20 at the rate of \$2 a visit during a period of two weeks. There is no provision for re-certification for the purpose of providing additional payment if the illness extends beyond two weeks. The National Regulations permit a re-certification and advantage of this is taken in New York State. This we feel will impose a hardship upon our doctors, because they are bound to continue adequate care of acute cases, ill beyond the two weeks' period, and until recovery, without further compensation; in addition, should there be more than one illness existing in the family, he is compensated for but one case, although he is required to care for all others who may be ill at the time.

The authorized fee for obstetric care in the home in Pennsylvania is limited to \$20, although under the Federal Regulations this amount could have been more. The number of pre-natal and post-natal visits required totaling 9, at \$2.00 per visit, leaves the doctor but \$2.00 for his services incident to the delivery, and there is no provision for payment of the pre-natal visits, should it become necessary, or should the patient decide to go to an institution for her confinement. The

representatives of the Philadelphia County Relief Board feel that our objections to the plan for obstetrics are well founded.

Generally speaking, our program in Philadelphia which has not yet been in operation for one month, has worked out very satisfactorily, and we have every reason to believe that minor difficulties will soon be eliminated. We have found that there are very few physicians attempting to take unfair advantage of the liberality of the plan, and these can easily be taken care of by the County Medical Society. The chief difficulty revolves around the writing of prescriptions in which the Regulations require physicians to use USP and N. F. drugs only; despite this fact, many doctors still write for high priced proprietaries and trade-named drugs.

The bills submitted by the doctors are in the majority of instances eminently fair, and show definitely the willingness of the members of our society to cooperate to the best of their ability in this emergency work.

We have the assurance from the powers that be in our State Capitol at Harrisburg, that the administration of this work will be free from political interference.

The number of persons applying for emergency medical relief is about 1,000 in round numbers (December 15 to January 11).

Recent information from the County Relief Board indicates that there are in Philadelphia, 52,000 families on relief, that the average family represents 4.2 individuals so that we have potentially 218,400 persons that may seek emergency relief and medical care under the Act, this Winter.

The Philadelphia County Medical Society has already taken action for the purpose of remedying the prescription situation, and at its last meeting the Board of Directors authorized the preparation of a pamphlet which will contain approximately 300 serviceable prescriptions covering the majority of affections that we may be called upon to treat. These prescriptions will employ U. S. P. and N. F. drugs only. When issued these will be paid for and distributed by our local druggists to their neighborhood physicians. This pamphlet issued in May, 1934 under the title of "Formulary of U. S. P. & N. F.

Preparations." In addition to the specimen prescriptions, it contains an epitome of the Regulations governing State Emergency Relief Medical. The price of this pamphlet is 10c. Copies can be obtained by addressing the Executive Secretary, Philadelphia County Medical Society, 21st & Spruce Sts., Philadelphia, Pa. This will not only be of great assistance to those administering County Relief Board medical relief, but should also serve to bring back that almost lost Art of prescription writing; and at the same time will most certainly combat the ever increasing tendency of thoughtless physicians to prescribe proprietary and trade-named preparations.

Before leaving this subject, I desire to call attention to at least one danger inherent in the plan for medical emergency relief as adopted by Pennsylvania. This is the limitation of fees to \$1.00 in the office, and \$2.00 at the house. This paves the way for possible dangerous future legislation, by establishing the precedent of very small fees. It would have been better if this agreement provided for the payment of the usual minimum fees of the locality, with the proviso that should these exceed the amount that the State is willing to pay, then the doctor should indicate that he will rebate the difference, accepting the amount provided and making the difference, his contribution to emergency relief. This is most important because we have it on good authority that this present temporary measure may, by Act of legislation, be made permanent for a period of from 5 to 20 years. Such action might easily result in the establishment of basic minimum fees, which would eventually harmfully influence the normal fees of private practice in many localities.

I believe it was a mistake also that we did not place any definite limit upon the duration of this plan. In New Jersey the agreement is for one year only.

#### CIVIL WORKS ADMINISTRATION

Under the Civil Works Administration a number of temporary positions became available to physicians in Philadelphia. To become eligible it is necessary to register at the State Employment Office, immediately after which each physician was required to file with the Philadelphia



County Medical Office, a registration form. The duties of all physicians will be supervised by the Department of Public Health of Philadelphia, under the immediate direction of the Chief of the Bureau of Surveys of Philadelphia, but only after the approval of the Civil Works Administration at Harrisburg. The positions will require 6 hours work a day, five days a week, and will pay \$45 per week. More than this is not definitely known. To date over 200 physicians have applied and registered.

As we see it, the work involved divides itself into two groups: 1. Special work of a research nature, or at least that which shall not conflict with individual private practice; and 2. The care of those injured while employed under the C.W.A.

Up to the present moment, we have endeavored to contact with the City authorities, and with the C.W.A. group at Harrisburg in order to discover what regulations have been provided. All we know is that the County Medical Society should be prepared to contact the local CWA, but nothing has been done in Philadelphia, except an informal conference held by two members of the Commission on Medical Economics. Out of this discussion came the following thoughts:

1. Some provision should be made for the preliminary examination of all applicants for C.W.A. activities. This should be thoroughly comprehensive, because all employees being under Federal control, will receive federal compensation. The danger of admitting the actually ill, or those possessing chronic ailments, is obvious.

2. Provision should be made for the care of injured and ill CWA employees by registered physicians, and machinery should be started for their payment, after proper review of the bills submitted, by competent local medical authority.

3. It was suggested that the medical aspect of this work be referred to the County Relief Board, County Medical Advisory Committee, or if this is not practicable then a special committee should be appointed by the Philadelphia County Medical Society to cooperate with the local C.W.A.

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## A BACTERIOLOGIC INVESTIGATION OF THE ARTHRITIC AND THE PREPARATION OF AN AUTOGENOUS VACCINE

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A few weeks ago a doctor friend of mine said something like this, "I have a patient 35 years of age who came to me 18 months ago with the complaint that she had pain in both shoulders, one wrist was swollen and she had definite pain in the right knee. I looked her over and decided it was a case of fairly acute arthritis, and put her on routine treatment. She had a few bad teeth which were extracted. She improved for a month and then relapsed. I then took her tonsils out with no improvement. Since then I have used all the methods appropriate to arthritic cases; diathermy, ultraviolet, drugs and vaccines. I have talked to several of my doctor friends and if any of them suggested anything new, I tried it out. This patient is now in bed, flat on her back, can't even raise her head off the pillow. Have you anything to offer from a laboratory standpoint?"

I do not criticize that story, but use it to illustrate the fact that by the time the patient gets around for a bacteriological study, she is a derelict, an empty hulk, as it were. Furthermore, in talking to arthritic patients one finds that they have been to this doctor and that one, to all the cults; they have had diathermy, baths, vaccines, in fact everything that has ever been proposed for arthritis. If these stories are true I believe we can make this statement—up to the present time there is no single method or combination of methods that offer cure, or even permanent relief to the arthritic. If we are willing to admit this, then I think we can approach this subject of the arthritic with an open mind.

I do not care to go into the classification of arthritis. I firmly believe that regardless of the class in which an arthritic is placed, the results of vaccine treatment are uniformly good. Neither do I care to enter into a discussion of the etiological factors. There are those who believe that trauma is the basis of all arthritis. There are some who believe in the metabolic theory, and some who believe in the endocrine theory. There are others who believe in the infectious theory. I am frank to say I belong to this latter group.

We formerly looked upon arthritis as a dis-



ease of the joints characterized by pain and swelling. I do not believe that arthritis is a disease "*per se*" any more than is a convulsion a disease. I believe arthritis is a symptom of a disease whose beginning is far removed from the joint itself. I believe that if the general practitioner who is seeing these arthritics from day to day will go back into the family and personal histories of the patients and supplement his findings with a laboratory study, he will find evidence of a bacteriological basis for the joint symptoms.

Obviously if we use the laboratory in a negative sense for the study of an arthritic, there is no end of the tests we might do. For instance, if it is a question of diagnosis between gout and an arthritic condition, then we might do a uric acid determination, or we might do a basal-metabolism test, if we suspect the endocrine system; or we might use the x-ray to ascertain osseous changes in the joints, etc. However, I believe these are negative tests, and can well be omitted in the majority of cases. On the contrary, if we confine the study to the bacteriological investigation of the foci, including nose, throat, sinuses, intestinal and urinary tracts, we will find evidence of an infectious basis in a vast majority of the cases.

The bacteriological study of a chronic case, whether it be arthritis, bronchitis or sinus disease, and the preparation of a vaccine from the organisms found is one of the most tedious and time consuming procedures that a laboratory is called upon to do. I do not want to tire you with details, but I do think there are two or three steps in the pursuit of these bacteria that might be interesting and instructive. I brought material from a case we started last Thursday. In the first place I will show the original smear on blood agar in a petri dish. You will see various colonies. Here is one surrounded by an area of green. Here is another surrounded by a transparent zone. Here are a few colonies of staphylococci. Here are one or two larger irregular colonies which are the ordinary contaminants one finds in such cultures. We might stop right here and make a vaccine for we have organisms belonging to both the hemolytic and viridans groups, but the simple fact that we have these organisms does not necessarily prove that they are pathogenic for this patient. We know that these organisms may be found as normal inhabi-

tants of the various foci, hence we must make further tests to prove that these are the offending organisms.

First we do a pathogen-selective test by making smears from each focus into the bottom of dry sterile test tubes, then add to each tube thus prepared approximately one c.c. of the patient's whole uncoagulated blood. We incubate these for 24 hours, and then transfer a loop full of the serum to a tube of suitable broth and incubate for 48 hours. If we find a growth in any of the tubes we assume that the patient's blood has lost its resistance against this particular organism. But we believe that still another test should be run in order to get more evidence against this organism, so we do a bactericidal test by planting a loop full of the organisms found in the previous step into approximately one c.c. of the patient's whole uncoagulated blood and incubate for another 48 hours. If this organism from the pure culture grows out again in the patient's whole blood we have further evidence of its pathogenicity. If such an organism does grow out we make an antigen from this particular culture and do a complement-fixation test against the patient's own serum. We could go on and do animal inoculation, agglutination tests, etc., but I believe these are unnecessary in view of the fact we have three positive tests using the suspected organism. Now our procedure is to make up separate vaccines from each of the organisms found by the previous steps and standardize each to the individual, and then combine the various vaccines into one vaccine, using the appropriate amount of each separate vaccine. The polyvalent vaccine is then standardized to the individual and the patient is returned to the referring physician with instructions that she must have weekly injections for at least one year. As a matter of fact, we find six months is nearer an average time in which one may expect satisfactory improvement.

I want to bring out one other point. In the case we have just demonstrated the organism happened to have been a streptococcus, but this does not prove that the streptococcus is the only organism that causes arthritis. I can best illustrate this fact by citing a case.

A woman patient was referred to me last July. She had been a semi-invalid for the past seven years and had gotten to the place where it was impossible for her to do her household duties. Her main complaint was in her back. We put her through this routine bacteriologi-

cal investigation and found four strains of streptococci in a throat culture. We also found some staphylococci and pneumococci and the ordinary contaminants. We did the routine tests with each of the strains of streptococci and all were absolutely negative. Then we used a colony of staphylococcus albus and to our surprise found all three of the tests were definitely positive. Our vaccine in this case was made from the staphylococci omitting all the streptococci and was then standardized to the patient as in the above case. She has been taking weekly injections since. This woman now is able to carry on her regular routine household duties, she performs her social obligations, plays golf, in fact she is enjoying life as the normal housewife should. I said a few minutes ago, I am an adherent to the infectious theory of arthritis, but I do not believe that the streptococcus is the only organism that can cause arthritis.

Having prepared a specific autogenous vaccine, what can you promise your patient?

Vaccines in general have earned a somewhat questionable place in therapeutics yet I dare say that there is not a physician in this room who if he has used as many as six vaccines on as many different patients has not had good results in at least one. Now, why did he have good results in one, and not in the other five? In my opinion there is one of three conditions which prevents satisfactory results. First, either the vaccine is not specific enough, second, the patient is so debilitated that she has no reserve power, or third, the vaccine is improperly dosed.

As to the first, non-specificity of the vaccine, I believe if we carry out the method I have just outlined we are reasonably sure of having the specific organism in our vaccine. As to the second, that is the debilitated patient, we find that from three to five per cent. of advanced arthritics are totally depleted of complement, hence vaccine therapy is useless until the patient's resistance is built up. As to the third, improper dosage, I can best compare it to old Dobbin hitched to a loaded wagon and started up hill. He will start up pretty well and pull the load about half way, then he becomes tired and slows down. You are sympathetic and you stop old Dobbin, rest him and give him a little food. Then you prod him just a little—just enough to call upon his reserve energy, and you keep repeating this at regular intervals until he reaches the top of the hill; his troubles are over, and then he can go ahead and do his full day's work. Suppose, on the other hand, when Dobbin tired out about half way up, you had lashed him with the whip and stimulated him to greater efforts. He gained ground for a short time, but tired sooner than before, and you lashed him again and again. Pretty soon he just stopped in spite of all the lashing and stimulation. His reserve energy was completely exhausted, and try as you did to force him to the top of the hill your efforts were in vain. So it is with the vaccine. When the arthritic first comes to you she has some reserve energy. You should help her conserve that waning resistance. She should have rest, food and other things that you recommend for the arthritic, but in addition she should have small doses of a specific autogenous vaccine, just enough to prod her sluggish defensive system to combat

the invader, never a dose large enough to give a reaction, lest she be stimulated beyond the reserve point and she become exhausted. In spite of literally pints of vaccine she will not progress, in fact, she will get steadily worse, regardless of what you do for her.

In closing I want to say just this: I believe that arthritis is a problem for the general practitioner. I do not want to be understood as saying or even intimating that a vaccine can be prepared that will in itself cure the arthritic, but I do want to say that if you use all the means at your command, diathermy, baths, heat, massage, drugs, etc., and add to those the proper dose of a specific autogenous vaccine, and administer this vaccine over a period of time sufficient to build up the patient's resistance, you will find that nine out of ten arthritics will respond satisfactorily.

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## BLEEDING FROM THE BOWEL

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ROCHESTER, MINNESOTA

A great handicap to the diagnosis and treatment of intestinal diseases is the tendency to ascribe bleeding from the bowel to hemorrhoids or abdominal distress to "colitis." Just this month I read a late bulletin from the United States Patent Office describing another marvelous table for the administration of colonic irrigations. This form of therapy has proved so lucrative that there is not much hope of its dying out soon. A slowly administered, warm saline enema may give temporary relief, of course, or cleansing irrigations for operation may be justifiable, but routine lavage of the bowel cannot be too sharply condemned. The various health articles in some newspapers and magazines, as well as marvelously phrased advertisements of otherwise dubious foods or other materials for ingestion, have contributed in a large measure to the confusion of the patient with intestinal symptoms. Further, the patient may unwittingly suggest the advice he seeks if the physician is not alert and does not insist on examining him.

The symptom of bleeding from the bowel is one of the most important single symptoms of gastro-intestinal disease and, if present, should demand that every effort be made to ascertain its source. About ten years ago Buie observed that 20 per cent of patients with carcinoma of the rectum had been treated for hemorrhoids after the onset of the symptoms of carcinoma. This



percentage has not been materially reduced, and I am wondering why so many patients with this disease have not had even a digital examination until weeks or months elapsed after the onset of bleeding. Many times they fail to seek advice; too often they seek it, but in vain.

I have found helpful the general outline suggested in French's "Differential Diagnosis," which I have modified and enlarged:

1. Discharge of a large amount of altered blood is true melena and is due to bleeding high in the intestine. The stools are tarry and viscid in character because the blood is altered in its downward passage. About 90 per cent of the cases are due to intrinsic lesions of the stomach and duodenum. Berkman has called attention to the fact that massive bleeding from esophageal varices rarely occurs except with concomitant signs of portal obstruction. Only small amounts of tarry material may be noted, but the attack may culminate in massive hemorrhage, or there may be a sudden copious discharge of altered blood. One should remember that blueberries, grape juice, iron, bismuth, and charcoal are some of the more common substances that make the stools dark or black. History of ingestion of such substances plus the chemical test for blood should rapidly settle any doubt.

2. Discharge of a large amount of red or unaltered blood is usually due to bleeding in the lower portion of the intestinal tract. The color of the blood depends on the rapidity of its passage through the bowel. Such hemorrhage may occur from typhoid ulcers, but fortunately few such cases are seen now as compared to formerly. Occasionally, large quantities of blood may arise from amebic ulceration, from chronic ulcerative colitis, and, less commonly, from tuberculosis of the bowel. In tuberculosis, hemorrhage usually indicates a terminal stage of the disease. I have seen two cases of massive bleeding due to rectal carcinoma; the hemoglobin dropped from 14 gm. per 100 c.c. of blood to less than 7 gm. within a few hours. I see no reason why this should not occur in carcinoma in other parts of the colon, but I have not encountered such a case. Massive bleeding has been observed as a symptom of occlusion of the mesenteric vessels and in pancreatitis. Large hemorrhages from an ulcer in Meckel's diverticulum are not rare and occur chiefly among children and young people.

In view of our recent experience with amebiasis, I wish to emphasize the fact that massive hemorrhage as well as perforation may be produced by amebic ulcers of the cecum. There may be few intestinal or abdominal symptoms, perhaps none, until the dramatic attack of bleeding or perforation ensues. I know of no way to anticipate such an accident other than by being alert for the atypical manifestations of amebiasis that are certain to be encountered more often than before in this zone.

3. Discharge of a small amount of red or unaltered blood is, of course, the most common type of bleeding from the bowel. The large hemorrhages previously referred to usually galvanize the physician, family, and friends into prompt, and often melodramatic, action. But small passages of blood are too frequently accepted as casual; if associated with pain, the patient starts looking for relief, but if no pain is present he may procrastinate, or, if he seeks advice, the examiner may fail to make a digital examination of the rectum. We have all heard of the response of the famous surgeon to the query as to what he considered the reason for his success: "I insert my finger into the rectum of every patient I examine."

Bleeding from carcinoma in the rectum and lower portion of the sigmoid early in the disease is often not associated with any other symptom. In a few cases the growth may start just within the anus, and, if it does, will soon produce increasingly severe anal spasm and pain. Practically all the cases of small rectal carcinoma that I have seen have been these low growths. In a few instances, the bleeding may be due to a polyp and the only sign may be a red streaking of the stool. If one has the good fortune to discover a polyp in the rectum and removes it properly, I think it is almost fair to say that he can honestly assume credit for saving a life. There is no question in my mind but that adenomatous polyps of the rectum and colon are, or soon will be, carcinoma. Gross bleeding due to carcinoma above the sigmoid is not the rule.

If ulceration is present, the blood is usually mixed with pus and mucus, with or without fecal matter. In such cases the patient has more or less tenesmus and pain. The more common lesions that produce this are chronic ulcerative colitis and amebic proctitis. Less frequent are in-



fections due to tuberculosis or to bacillar dysentery, ulcerations among women previously treated with radium for carcinoma of the cervix, *Balan-tidium coli*, and *Bilharzia hematobia*. I purposely leave to the last the most common causes of rectal and anal pain with bleeding, namely, hemorrhoids, fissure and anal infection. To diagnose other diseases early, we must learn to think of everything else before attributing symptoms to piles or to fissure. By no means do I minimize the suffering and even serious depletion from these comparatively minor conditions, but other diseases should be considered first. During this past week I examined a patient who was very pale. The value for hemoglobin was 5 mg. per 100 c.c. of blood compared to a normal of 15 gm. per 100 c.c. This severe anemia was finally found to be due to bleeding hemorrhoids.

One more rather common cause of small amounts of blood from intestinal bleeding is intussusception. In infants and young children, a bloody stool associated with abdominal pain promptly leads one to think of this condition. In adults, intussusception is not likely to cause bleeding in macroscopic quantities, unless the sigmoid or descending colon telescopes into the rectum. Almost all of the cases in adults are due to a tumor that the bowel is endeavoring to extrude and two-thirds of these tumors are malignant<sup>4</sup>.

Diverticulitis of the sigmoid, although in an almost negligible percentage of cases, may be a source of blood in the stool, but if blood is present, one must be particularly careful to rule out associated carcinoma.

4. The fourth important type of bleeding is microscopic or occult. Oozing from a peptic ulcer is the most common cause and oozing may also occur from an ulcer in a Meckel's diverticulum, although probably most of these ulcers are peptic. Until obstruction intervenes, the only positive finding in carcinoma of the small intestine is occult blood in the stool. Infestation with the hookworm likewise causes minute bleeding. Certainly the old teaching should be re-emphasized, that of examining the stool for occult blood in all cases of anemia of doubtful origin. The objection to chemical tests has been the difficulty in ruling out anal or oral bleeding. Although meat in the diet is a potential source

of error, its importance has probably been unduly stressed.

*Diagnosis.* Obviously one does not think of all the above conditions with every patient who is anemic or who complains of gastro-intestinal symptoms. Rather, certain features stand out that suggests the proper preliminary procedures. After the history is obtained, one certainly performs a careful physical examination which includes digital examination of the rectum. Possibly nothing further may be necessary or the lack of facilities at hand may prevent special studies, but it should be an invariable rule that if a positive diagnosis is not promptly established and symptoms do not rapidly subside, the patient must be carefully examined. First, usually, is the examination of the stool for parasites or ova, or making cultures for the streptococcus of ulcerative colitis or bacillar dysentery. It should be noted that for cultures in suspected cases of bacillar dysentery, the material must be plated immediately after passage of a stool or after it is obtained by rectal tube or proctoscope. The organisms of dysentery die rapidly on exposure to air. The guaiac test for occult blood is preferable as it is less sensitive than the benzidine test.

Examination of the anus, rectum, and rectosigmoid by the proctoscope is all but imperative if one is to determine whether the bleeding is a reaction to radium or due to ulcerative colitis with *Endameba histolytica* as an incidental finding, and so forth. It is not a difficult procedure, but it requires experience to recognize the various lesions; not infrequently this examination is made, but the findings are misinterpreted.

Roentgenologic examination is the other most valuable aid in diagnosing lesions of the bowel and the most important one in lesions of the upper portion of the intestinal tract. When melena in any appreciable amount has recently occurred, it is wise to delay examination until the stools are free from blood. In case of questionable obstruction, it seems impossible to emphasize the fact too much that opaque media should not be administered by mouth, for this may precipitate acute obstruction. It is less dangerous to give an opaque enema, because, if pronounced obstruction is found, the flow of liquid can be stopped. The roentgenologic diagnosis of lesions of the small

bowel is difficult even in the hands of experts and, hence, in such cases, the clinical signs must usually be relied on. The chief errors<sup>5</sup> in interpretation of the opaque enema are due to inadequate preparation of the bowel. If preparation has been satisfactory, the most important factor of error is failure to secure adequate exposure of the involved loop. The sigmoid offers the greatest difficulties on account of its deep situation in the bony pelvis and the fact that its inspection is often seriously interfered with by anomalous multiplication of its coils. Likewise, in the right portion of the colon, especially in the cecum, the large lumen does not tend to show the degree of narrowing usually observed in the more distal portions as a result of disease.

#### SUMMARY AND CONCLUSIONS

1. The more common types of bleeding from the bowel are considered under four divisions.
2. "Piles" and "colitis" should not be too readily accepted as explanations of intestinal disturbance.
3. Digital examination of the rectum is always an available procedure, but is too often neglected or delayed.
4. A few of the important features of the special diagnostic aids are discussed.

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#### SPINAL ANESTHESIA; AN EXPERIMENTAL STUDY

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In a previous communication<sup>1</sup> the authors presented a review of the literature on the subject of spinal anesthesia, including a discussion of the application of the more recent as well as the older preparations and methods. It was noted that, although considerable study had been devoted to the technical application of the various solutions as well as the immediate clinical

results in respect to degree of anesthesia and after-effects, little or no study had been made of any possible pathological effects on the spinal cord of anesthetizing solutions injected into the spinal canal. More recently Davis and his co-workers<sup>2</sup> found definite pathologic changes in the cords of dogs exposed to spinal anesthetic substances in common use. A varying degree of inflammatory reaction in the leptomeninges was found. Also changes in ganglion cells resembling Wallerian degeneration, swelling of axis cylin-

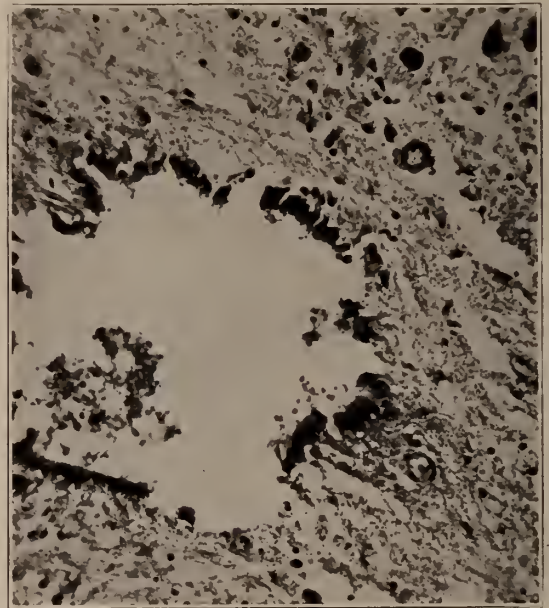


Fig. 1. Section of cord around central canal on Dog No. 6, given 0.7 cc. of spinocaine 5 days before removal.

ders and signs of degenerative changes in the fiber tracts of the cord, apparently of a temporary nature. Lindemulder<sup>3</sup> found edema of the meninges of the cord in the human in two cases of death following spinal anesthesia, one of which in addition showed myelinosis in the lower cord. It was further interest in the possibility of such changes, with possible subsequent clinical manifestations, which prompted the following experimental inquiry.

The plan of the work, which was performed during the year 1930, was to inject various amounts of a solution in popular use for the production of spinal anesthesia (spinocaine) into the spinal canal of dogs, and after various intervals, under general anesthesia, to sacrifice each dog by a method which would in itself not produce marked changes in the substance of the



spinal cord; then immediately afterwards to remove the lumbar cord and prepare it for histological examination. The anesthetic used on the dogs in preparation for the spinal puncture consisted of a small hypodermic dose of morphine followed by a light ether anesthesia. The technic consisted in the usual method for lumbar puncture with use of the short beveled Pitkin needle. Difficulty was encountered early in the work in obtaining clear spinal fluid because of the small space between the cord and the wall of the spinal canal. However, after a series of unsuccessful taps it was found that, with improvement of technic, successful punctures could be made with withdrawal of clear fluid and injection of the solution. The animals were kept with the foot of the table slightly elevated during the injection and for about half an hour afterwards, as is done with the patient on the operating table. The dogs were allowed to awaken and, after the cords had been exposed for a sufficient period of time to the solution, the animals were sacrificed, as described, and the lumbar cord and meninges were rapidly removed.

Six dogs were successfully injected with amounts of solution varying from 0.5 cc. to 2 cc. depending upon the dog's weight. The cords were removed from 2 hours to 14 days after the injection. Formalin and Zenker fixation were used, and frozen and paraffin sections were made and stained by the following methods:

Hematoxylin-eosin stain

Pal-Weigert stain for myelin sheath

Bielochowsky stain, a silver stain for nerve fibers (Axis cylinders) and reticulum.

**Results.** The sections stained by the Pal-Weigert and Bielochowsky methods showed no evidence of degeneration or other changes in the myelin sheaths or nerve fibers. Of those stained with hematoxylin-eosin all but two cords were normal. Sections of these two showed evidence of cloudy swelling of the cells lining the central canal. This is illustrated in Fig. 1, microphotograph of a section of the cord from Dog 6. The blood vessels in the subarachnoid space are hyperemic. Neither gray nor white matter shows any changes. The central canal contains a small amount of a reddish homogeneous drop-like material. The lining cells of the central canal were swollen and the cytoplasm finely granular.

Dog 1, whose cord showed the most changes, was given an injection of 2 cc. of solution, the

largest dose given and apparently too large for an animal of that weight or a cord of that size. Possibly this may account for the changes in the ependymal cells. The cord of this dog was removed four hours after the injection. Dog 6, also showing some cloudy swelling, was given 0.7 cc. of solution, and the cord removed five days later.

It is evident that this work is not at all conclusive as to the safety of using spinal anesthesia. The indication seems to be that there are no degenerative changes produced but that early irritative changes, as cloudy swelling, may be caused, especially with the use of large doses of solution. However, it must be noted that, first, this work was done on the dog and not on the human being and we cannot rightfully conclude that the findings would be the same on the latter under similar circumstances, and second, that the cords were examined only up to a few weeks after the injections, whereas it would seem advisable also to examine cords for degenerative changes after a much longer interval following the spinal anesthesia. Davis<sup>2</sup> found that the inflammatory reaction in the leptomeninges seemed to persist but the signs of degenerative changes were less pronounced in animals allowed to live ninety days, speaking against their permanent nature. It is not to stimulate enthusiasm in the use of spinal anesthesia but rather to stimulate interest in further work, especially along the lines suggested, that we feel prompted to present this report.

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#### RETICULAR CELL SARCOMA OF KIDNEY

With Case Report

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CHICAGO

The study of sarcomata of the kidney is even more confusing than that of epithelial tumors. They are a small, ill-defined group of questionable origin and structure, and are rare. They have been confused with perirenal, retroperi-



toneal, and renal capsular tumors. Moreover, renal carcinomata have areas histologically similar to sarcoma.

It seems worth while to call attention to mixed-cell sarcomata of the kidney, not because of their comparative rarity, but because they are seldom considered clinically. The credit is generally given to Birch-Hirschfeld for recognizing

remain undetected for a long time, hence have a high mortality rate.

In adults, the age incidence is between 25 and 45 years. These differ from the sarcomata of early life and begin growing from the kidney capsule. They are often described as perirenal because they take origin in the perirenal connective tissue. These tumors seldom reach the enormous size seen in children and usually present such types as spindle-cell, round-cell and fibro-sarcoma.

As a rule, these growths are soft in consistency and on section have the appearance of a grayish mass with scattered areas of degeneration. They are most frequently nodular but may be diffuse. The kidney capsule is frequently the origin of the growth, from which point the soft tissues are invaded. In other instances the tumor starts in the hilus and reaches the kidney substance along the course of the blood vessels.

*Symptoms:* In children, the majority of cases occur during the first two years of life and the tumors cause few symptoms. The pelvis of the kidney is generally not involved, consequently hematuria and urinary obstruction are uncommon, and pain is rare. Hematuria, when present is not infrequently the only symptom; it is generally of short duration and may result from trauma.

In adults there may be a multiplicity of symptoms; usually there are few or none at all until the tumor growth has made considerable progress.

They may consist of:—

1. Pain
2. Palpable Tumor
3. Hematuria
4. Fever

*Hematuria* is seen as the initial or only symptom in over 60% of cases. As a rule, the degree of hematuria is greater in the case of a neoplasm, than in any other form of kidney lesion causing hematuria. In general, the bleeding occurs without apparent cause, is profuse and continuous for a period varying from hours to days, and then ceases as spontaneously as it appeared.

As the tumor grows, the intervals between the attacks of hematuria become less and less until the bloody urine is a constant feature. In a small percentage of cases, the symptom of hematuria may be overshadowed or preceded by pain, palpable tumor, etc.



Fig. 1. After injecting Neo-Iopex, the right pelvis is outlined apparently well filled. The left pelvis does not fill at all and considerable enlargement of this kidney is noted.

ing that tumors of this variety have characteristics in common, notwithstanding their variation in histologic structure.

Since the age incidence in sarcoma varies widely we shall consider its clinical manifestations from the standpoint both of the child and of the adult.

*Pathology:* Children are liable to an exceedingly malignant type of sarcoma, from birth up to the age of 5-6 years. These growths have their origin in the connective tissue of the kidney, gradually distend the kidney proper, absorbing much of its tissue as they progress in size. They consist partly of spindle, partly of round cells, while some muscle fibers also are found. They

*Pain* may be the outstanding complaint of the patient. In many cases, however, there is an absence of pain throughout, or it appears late in the disease following the invasion of adjacent nerves and structures. It is more apt to be due to metastasis than the primary cause.

*Fever.* A febrile reaction is at times observed in neoplasm and may be attributed to an associated pyelitis or absorption of necrotic tumor tissue.

*Physical Findings:* The essential physical



Fig. 2. After injecting Sodium Iodide in left kidney pelvis, a marked deformity of the pelvis is noted with some rotation of the kidney laterally. The lower pole appears to be pushed forward.

finding consists of the presence of a palpable tumor which may be apparent on abdominal inspection alone. This is the exception however, rather than the rule. In adults especially, palpation of the kidney region is generally necessary to reveal a tumor mass.

In children, tumor is the most constant initial finding, while hematuria is either absent or appears very late in the clinical picture. The opposite kidney should always be palpated to rule out a possible bi-lateral polycystic kidney.

*Laboratory Examination.* The urine may be

only smoky when the amount of blood is small, or blood may be revealed only on microscopic examination. It is however, usually dark red and contains large casts of the ureter composed of coagulated blood.

*Cystoscopy.* There is nothing characteristic of cystoscopy in cases of suspected renal neoplasm, unless of course, one finds one or more papillomata in close relation to the ureteral orifice on the suspected side.

*Radiography* is of little assistance in making a diagnosis unless calcified areas are present.

*Ureteropyelography* is the most valuable diagnostic asset. It indicates: Ureteral changes, alterations in the pelvis and calyces, changes in the contour and size of the kidney, filling defects, and retention due to occlusion of the outlet of the renal pelvis.

The *Diagnosis* of renal tumors is therefore made on a consideration and evaluation of the above mentioned symptoms, and a careful and intelligently performed ureteropyelography.

*Differential Diagnosis:* The following conditions must be differentiated by pyelography since this is our most valuable diagnostic aid.

- (a) Inflammatory exudates in the renal pelvis or its calyces, which gives a filling defect and distortion deformity.
- (b) Perirenal sclerosis.
- (c) Perinephritic abscess.
- (d) Renal tuberculosis.

Illustrative of the wide difference in histologic and pathologic structure to which the sarcomata lend themselves, the following case is presented:

Case 1. E. J., aged 65 years, male, presented himself for examination and gave the following history: Nausea and vomiting of 2-3 months duration. Vomitus consisting of mucus. This symptom has become more pronounced during past three weeks. Also complained of anorexia, constipation and a weight loss of 15-20 pounds. There has been no pain in relation to meals. He has had no urinary symptoms whatsoever.

*Physical Examination:* Was largely negative except for a mass palpable in the region of the left kidney.

*Abdomen:* A single film was made of the abdomen before the administration of the contrast meal. The outline of the right kidney was noted. It was of normal size, contour and position. The lower border of the left kidney was fairly definite, but the upper border was not defined. Apparently the kidney was considerably enlarged.

The patient was given a contrast meal and the gastrointestinal tract studied both by the fluoroscopic and film methods.

The barium entered the stomach without any ob-



struction at the cardia, there were no filling defects in the gastric contour. In the upright position there appeared to be a slight displacement of the stomach toward the right. The duodenal bulb was normal. A series of films made at this time showed a normal stomach and bulb.

Six hours later the stomach was empty, no abnormalities could be seen in the colon with the exception of moderate spasticity.

Enemas were used to remove the barium from the

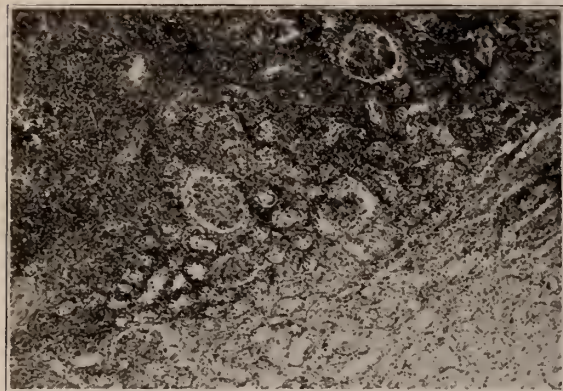


Fig. 3. Micro-photographic view of section through primary tumor under low power showing dense masses of sarcoma cells infiltrating kidney parenchyma.

colon and neo-iopex was given intravenously and a series of films were made.

The right kidney pelvis was outlined apparently well filled, and of normal size, shape and position. The left kidney pelvis did not fill at all. Considerable enlargement of this kidney was noted.

*Cystoscopic Examination:* The bladder appeared to be normal, catheters were passed to both kidney pelves without difficulty. The flow of the urine from the right side was free and prompt. From the left side there was practically no urine recovered.

*Stereoscopic films* were made after injecting the left kidney pelvis with sodium iodide solution. They revealed a marked deformity of the pelvis with some rotation of the kidney laterally and with the lower pole pushed forward.

The general appearance of the pyelograms suggested a renal tumor rather than an inflammatory process.

*Laboratory Findings:* The blood count was within normal limits. The urine contained occasional pus and blood cells with some mucous threads.

The urine obtained from the catheters was also largely negative.

The intramuscular administration of phenolsulphone-phthalein was employed. The dye appeared in the urine, from the right side at the end of 7 minutes. From the left side there was no excretion of the dye. The Kahn test was negative.

It was therefore judged that the symptoms were due to a renal tumor which was considerably impairing the function of the left kidney and nephrectomy was advocated.

*Operation:* Because of the patient's age a spinal anesthetic consisting of 200 mg. of novocain was administered.

A left lumbar incision was made, beginning at the angle of junction of the vertebral end of the last rib and the lateral border of the erector spinae muscle, extending vertically downward to a point midway between the crest of the ilium and the last rib and turning slightly anteriorly. The latissimus dorsi, external and internal oblique muscles were divided and transversalis fascia, exposing the perirenal fat, and mobilization of the kidney was attempted. The kidney was enlarged to approximately one and one-half its normal size chiefly at the upper pole and was delivered into the field with difficulty. The pedicle was doubly clamped and ligated and the kidney removed. An iodoform gauze pack was placed firmly in the kidney bed and against the pedicle and the wound closed in layers. This patient made an uneventful recovery and was discharged in good condition 12 days after operation.

*Gross Pathology:* The kidney was 14 cm wide and 6 cm thick. The upper pole was largely made up of an ill-defined tumor mass 7x6x6 extending to the capsule. The upper calyces were encroached upon by tumor tissue. The tumor tissue was firm and of a uniform grayish color. The lower pole presented small areas of yellowish tissue.

*Microscopic Description:* The parenchyma was densely invaded with tumor cells, medium sized round cells with anaplastic nuclei. A few tubules present interstitial

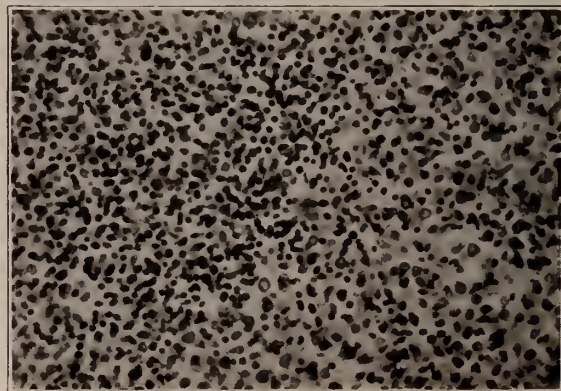


Fig. 4. Micro-photographic view of section through primary tumor showing a structure rarely seen in this type of tumor, the salient feature of which is a dense invasion of parenchyma of medium-sized round cells with anaplastic nuclei. A few tubules reveal an interstitial tissue increase.

tissue increased in places. Polymorphonuclears, eosinophiles and lymphocytes were present.

A pathologic diagnosis of reticular cell sarcoma of kidney or reticulocytoma was made.

*Progress of Case:* This patient appeared much improved for two months following his nephrectomy. Gradually thereafter there was a recurrence of his gastro-intestinal symptoms. He complained of glandular swelling in either inguinal region, and experienced a spontaneous hematuria which lasted a few days and



then disappeared. During the following six months he pursued a progressively downward course, lost weight rapidly and developed a rather severe secondary anemia. There was an absence of pain in his long bones.

Continuous gastro-intestinal discomfort prevailed, associated with anorexia and frequent vomiting. During the last three months patient developed a hard dry cough, expectorated much blood-tinged sputum and developed a low grade pneumonia to which he succumbed one year following the operation.

*Necropsy:* Metastatic tumor growths were found on both surfaces of the diaphragm. There were sub-pleural growths opposite the lower ribs. An enlargement of the tracheobronchial and pariesophageal lymph glands was present. A hypostatic congestion was noted in both lower lobes. The mesentery of the small bowel was thickly studded with small nodules, which were for the most part firm but several areas of liquefaction and softening were on the external surface and on the cut section. The firm tumor tissue was of a whitish color, the softened areas shaded from pink to red.

The histologic examination of sections of the liver, prostate and seminal vesicles revealed no alterations. On section, both lungs showed scattered areas of tumor tissue. Section of the spleen revealed nothing other than an irregular thickening of the tunica media in the small arterioles. In the pancreas, tumor cells were demonstrated in the small veins and venules in sections that contained no tumor cells elsewhere.

In general, the tumor tissue examined from the various organs had a similar structure to sections taken from the primary growth.

## CONCLUSION:

1. It is possible for a renal neoplasm to be absolutely asymptomatic, or present symptoms referable to some system, other than the genito-urinary tract.
2. In adults pain and hematuria are late in appearing or may be absent, the only significant finding being a palpable tumor mass.
3. Ureteropyelography is the diagnostic aid of most assistance in determining the presence of a neoplasm.
4. Numerous histologic combinations are common in sarcomata as illustrated in the above case.
5. The mortality is necessarily high because of the insidious growth of these tumors; considerable headway and often metastases have occurred before a neoplasm is even suspected.

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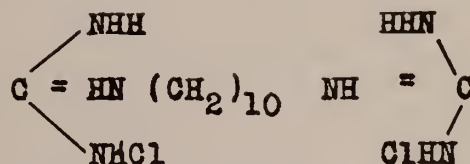
## THE ACTION OF DEKAMETHYLENDI-GUANIDIN-BITARTRATE ON THE BLOOD SUGAR

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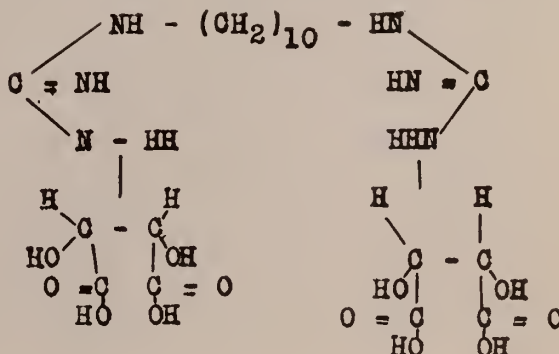
CHICAGO

*Introduction:* In an attempt to find an effective antidiabetic drug that allows oral administration, E. Frank and Heyn in 1926 recommended the use of guanidin salts (Synthalin).



Guanidin and its salts lower the sugar content of the blood when given by mouth but the severe gastro-intestinal disturbances encountered after continued use have so far prevented the general application of the guanidin compounds in the treatment of diabetes mellitus. Bischoff, Sahyun and Long studied a large number of guanidin derivatives as regards their effect upon the carbohydrate metabolism and came to the conclusion that when the guanidin nucleus is joined to an organic acid through oxygen the toxicity is decreased; when through carbon it appears to be harmless. Studying the possibility of finding a derivative which would be more insulin-like than synthalin they came to the conclusion that the physiological action of the guanidin salt encourages the preparation of other derivatives with hypoglycemic action and without toxicity.

Recently a new preparation, dekamethylen-di-



guanidinbitartrate has been tried by a large number of investigators (Froelich, Lasch, Wagner, Oesterreicher, Wechsler, Stein, Bernheim and Kasis, Vischner and Messer) and their results are so encouraging as to effectiveness and compatibility that further studies of this new preparation seem to be warranted. The preparation has been given to me by the Anticomman Company in Zurich.

The dekamethylendiguandinbitartrate is given orally in connection with pancreatinenzymes in order to improve the digestion. Kalli-krein is added to secure resorption since it has been shown by Frey and Kraut in Düsseldorf that kalli-krein dilates the smaller blood vessels of the intestinal tract.

*Method:* Full grown rabbits were used for the experiment. They were kept on a standard diet composed of cabbage, hay (alfalfa) and oats. The dekamethylendiguandin preparation was introduced through a stomach tube after having been suspended in a small amount of water. Blood

samples were taken from the ear veins at certain intervals and the blood sugar was determined by the method of Folin and Wu.

First the toxicity and the toxic limits were determined. Second the effect of the drug upon alimentary hyperglycemia produced by feeding dextrose was studied. Third a tolerance test was performed by giving the guanidin salt for a period of five successive days. Finally, two adult dogs were used for comparison of the results with those obtained with rabbits.

*Results:* The results of these experiments are compiled in two tables and two curves.

*Discussion of Tables 1 and 2:* Rabbit 1 which served as control without receiving the guanidin preparation showed only very slight variations of the blood sugar during the period of the experiment.

Rabbits 2 and 3 were given 12 mg. dekamethylendiguandinbitartrate pro Kg. body weight. About two hours after the guanidin was fed the blood sugar rose slightly (for 10-25%) to return

TABLE 1

Rabbit	No. 1 (Control)	No. 2	No. 3	No. 4	No. 5	Dog 1 (Control)	No. 2	No. 3
Weight .....	3065 grm.	3190 grm.	3112 grm.	3580 gm.	3129 gm.	30¾ lb.	30¾ lb.	20¾ lb.
Blood sugar after 12 hrs. fasting.....	82.30 mg.	90.91 mg.	89.0 mg.	78.0 mg.	90.9 mg.	80.64 mg.	76. mg.	74. mg.
Administered Anticomman per 1 Kg.								
body weight .....		12 mg.	12 mg.	24 mg.	24 mg.		10 mg.	10 mg.
Blood Sugar per 100 cc. in fasting state:								
After 1 hour.....	89.7	94.3	96.5	92.6	105.			
After 2 hours.....	85.8	113.	116.3	100.	107.			
After 3 hours.....	95.3	102.	112.0	83.	105.	78.12	78.13	70.
After 4 hours.....	93.9	100.	115.2	69.9	109.			
After 5 hours.....	99.	108.	125.	117.6	106.			
After 6 hours.....	86.9	125.	127.	105.3	103.	81.63	76.3	67.
After 7 hours.....	96.	112.	110.	70.4	90.9			
After 8 hours.....	89.7	104.	103.	64.5	83.			
After 9 hours.....	102.	124.	108.5	61.0	85.	81.	72.	65.
After 10 hours.....	98.5	110.	112.	56.	77.			
After 24 hours.....	100.	111.7	114.	Convul- sions	Convul- sions	82.65	61.	54.
Diet	Normal	Normal	Normal		Injected 3 gm. dex- trose per 1 Kg. wt.	Normal	Normal	Normal
After 27 hours.....	118.	113.	116.3	Died. (17 mg.)				
After 30 hours.....	85.	90.	92.		Convul- sions. Injected 2 gm. dex- trose per 1 Kg. wt.			
After 33 hours.....	88.	89.	90.		18. mg. Died.			
After 50 hours.....	103.	103.	98.					
After 53 hours.....	80.	79.	85.					
After 58 hours.....	94.3	94.	91.					
After 72 hours.....	89.	89.	92.					
After 75 hours.....	87.	87.	89.2				80.	78.
Weight after 24 days.....	3239 gm.	3322 gm.	3271 gm.					

TABLE 2

Rabbit	No. 1 (Control)	No. 2	No. 3	No. 4 (Control)	No. 5				
Date of Experiment.....	3/6/33	3/8	3/9	3/10	3/12	4/3	4/5	4/10	4/14
Weight .....	3614 g.	3184 g.	3646 g.	3065 g.	3184 g.				
Blood sugar after 12 hr. fast.	92.98	93.90	87.34	95.20	93.8	105.2	101.	92.59	104.
Administered per Kg. wt.									
Dextrose .....	2 gm.	2 gm.		3 gm.	3 gm.	3 gm.	3 gm.	3 gm.	3 gm.
Anticomman .....		12 mg.	12 mg.		34 mg.	12 mg.	12 mg.	12 mg.	24 mg.
Blood Sugar:									
1 hr. after adm.....	154.			95.2	86.96				133.3
2 hrs. after adm.....	120.			163.3	92.59				
3 hrs. after adm.....	105.3	84.75	2 gm. dextrose	159.	103.	92.5	105.	97.5	129.8
4 hrs. after adm.....	96.6			152.	92.17				
5 hrs. after adm.....				86.2					
6 hrs. after adm.....	80.	88.11	105.2	90.9		96.6	110.	94.34	132.8
9 hrs. after adm.....	83.32	76.92	88.5			89.6	95.1	90.9	110.0
12 hrs. after adm.....	88.11	98.87	81.63						
27 hrs. after adm.....	90.90	83.34	82.3			88.1	93.3	93.0	83.3
30 hrs. after adm.....	90.91	74.08	76.92						
Weight after 24 days.....	3783 g.	3210 g.	3764 g.	3239 g.					

to normal within 30 hours. No ill effect was noted and the animals gained in weight during the following two weeks.

Rabbits 4 and 5 were given 24 mg. pro kg. Again the blood sugar rose slightly after 5 and 6 hours and at the tenth hour it dropped considerably. After 24 hours both animals had convulsions. Rabbit 4 died after 27 hours. At autopsy a confluent bronchopneumonia was found in the right lung which probably was due to aspiration of the drug. There was a moderate fatty degeneration of the liver and of the kidneys.

Rabbit 5, which had convulsions 24 hours following the administration of the guanidin compound, received 3 gm. dextrose pro kg. intravenously, whereupon its condition improved markedly. Three hours later the convulsions started again and were influenced favorably by repeated injections of 2 gr. sugar per kg. wt. The animal died after 33 hours showing 18 mg. of blood sugar thirty minutes after death. At postmortem the liver was light yellowish brown, the kidneys and the spleen were moderately congested and the lungs were unchanged. Microscopic examination revealed that in the outer third of the hepatic lobules the liver cells were swollen and vacuolated. The content of the vacuoles did not stain with Sudan III and in the protoplasmatic septa between the vacuoles there were small fat droplets. In the inner two-thirds of the lobules the vacuolization of the liver cells was much less marked and there was much more sudanophilic material. Single liver cells were stuffed with fat droplets. The liver cells in the periphery of the lobules had shrunken, crenated

and broken up nuclei. There was a marked granular swelling of the epithelium of the convoluted tubuli of the kidneys. Fat could not be demonstrated. The splenic pulp was congested. The follicles were large and lymphocytic and there was no fat present.

Since the two rabbits which had received 12 mg. showed no reactions and remained perfectly well, 12 mg. anticomman guanidin per kg. wt. may be considered as the upper non-toxic limit. As shown in Table 2 a dosage of 34 mg. dekamethylendiguanduin-bitartrate per kg. was survived when dextrose was given simultaneously.

10 mg. dekamethylendiguanduin-bitartrate per kg. was administered to two fasting dogs (see Table 1). The blood sugar was depressed 20 and 25 per cent. respectively after 24 hours. The dogs were then fed and appeared normal. On the following day, after 50 hours, the blood sugar level returned to 80 and 90 mg.

These experiments demonstrate that dekamethylendiguanduin-bitartrate may be given in relatively large doses with a delayed effect upon the blood sugar and without ill effect upon the animal.

Table 2 and Curve 2 illustrate the effect of the Dekamethylendiguanduin-bitartrate upon alimentary hyperglycemia. In rabbit No. 1 to which, after fasting for 12 hours, 2 gm. dextrose pro kg. was administered, the initial blood sugar of 93 mg. rose within the first hour to 154 mg., then gradually dropped to 120, 105, 96 mg. and was 91 mg. after 30 hours. Animal No. 2 received 2 gm. dextrose and 12 mg. anticomman pro kg. Preceding the test the blood sugar of this animal was 94 mg. There is seen a slight drop



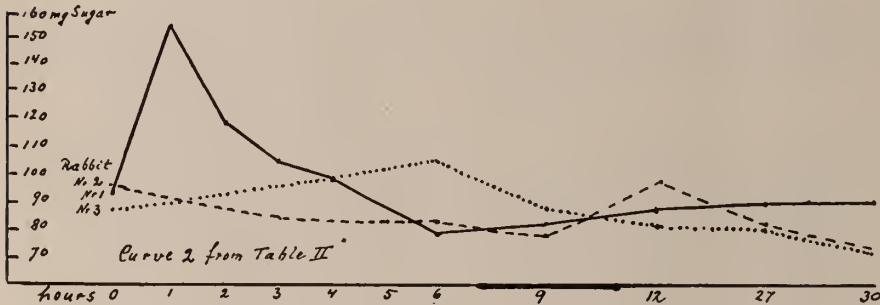
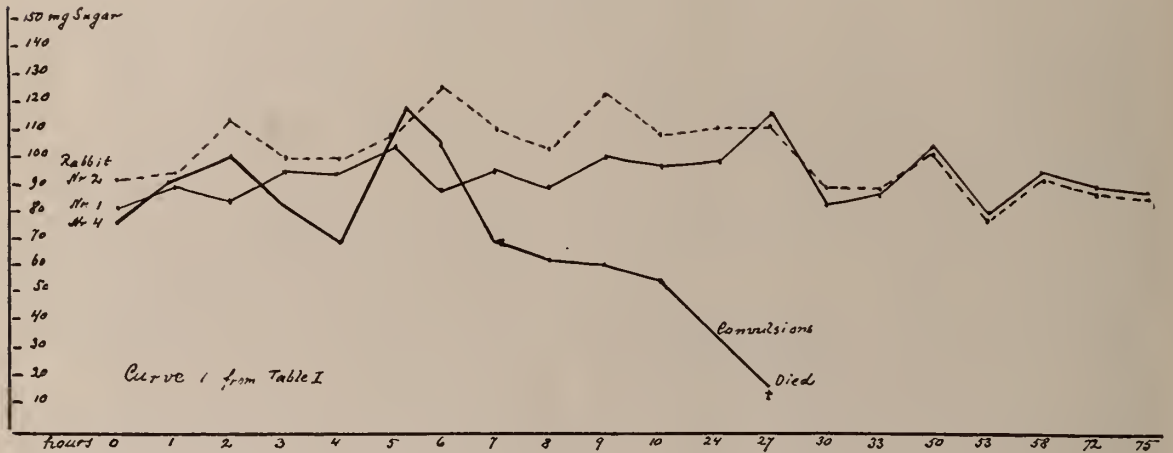
to 85 mg. after 3 hours, a further drop to 77 mg. after 9 hours and a rise to 99 mg. after 12 hours and a drop to 74 mg. after 30 hours.

To animal No. 3 with an initial sugar of 87 mg., 12 mg. dekamethylendiguandin-bitartrate and after 3 hours 2 gm. dextrose pro kg. were given. Three hours later the blood sugar was 105

the sugar level from 88.1 to 83.3 mg. after 27 hours.

From the above data and from the fact that the animals gained in weight it can be concluded again that dekamethylendiguandin-bitartrate in combination with pancreatic ferments (which combination is known as anticoman) is a rela-

Curves from Tables I and II



mg. The sugar returned later to about the initial level and after 30 hours it dropped to 77 mg.

The following 6 columns of Table 2 show the results of the tolerance test that was extended over a period of five days.

The control animal No. 4 received 3 gm. dextrose pro kg. In the first four hours an elevation of the blood sugar content and later, a return to the initial sugar content was noted. Animal No. 5 received each day of experimentation 3 gm. dextrose pro kg. and on the first day 34 mg., on 3 successive days 12 mg. and on the last day 24 mg. dekamethylendiguandin-bitartrate pro kg. In this experiment a slight rise in the blood sugar is seen after 3 hours and a drop of

tively non-toxic compound which influences distinctly the sugar metabolism.

Finally in order to determine the effect of non-lethal doses upon the liver cells, biopsies were taken from the liver previous to and after the administration of the drug. In none of the specimens examined were there any evidences of degeneration of the liver cells which retained their normal glycogen content.

On account of the foregoing findings it can be stated that dekamethylendiguandin-bitartrate is harmless in doses of 12 mg. pro kg. when given in fasting state. Larger doses may be given if they are combined with dextrose. The action is insulin-like but slightly delayed. However, this

may be regarded as an advantage. Within the non-toxic limits no effect could be noted upon the liver cells microscopically.

Because of the favorable results obtained in the animal experiments a trial was also made on ambulatory patients with a moderately severe diabetes mellitus. The clinical observations on these ambulatory patients thus far are too few to draw accurate conclusions at present. We wish, however, to mention that patients with mild diabetes apparently tolerate anticoman with no deleterious effects, that a gradual substitution of insulin by dekamethylendiguanidin-bitartrate is not followed by discomfort, that the patients state they are less thirsty and have less fatigue, further that a loss of weight was not observed.

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# BLOOD CALCIUM

## A Laboratory Study of the Relationship Between Total Calcium, Diffusible Calcium, and Inorganic Phosphorus

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Following the discovery that calcium is always present in the blood stream in two forms—diffusible and non-diffusible—which possess quite dissimilar characteristics, it has become apparent that the determination of the *total* calcium content of the blood is quite insignificant by itself. Unless the diffusible portion of the total calcium content is also determined, little significance can be ascribed to this quantitative procedure.

Bastedo<sup>1</sup> says, "Calcium metabolism is closely related to the amount of calcium and phosphorus in the food, the activity of the parathyroid glands, vitamin D, and possibly vitamins A and C. The blood serum holds normally 9.5 to 11 mg. of calcium per 100 c.c.; but in sickness and wasting diseases, the titer is lower, and in some cases of tetany has been found less than half the normal. Of the total serum calcium, Cantarow finds that about half is *nondiffusible* or bound calcium, and half is *diffusible*, but only a portion of the latter is ionized. It is probable that the *ionic calcium* is the only active portion; therefore the serum calcium is not a true index of the calcium balance. Ionic calcium decreases cell permeability so that, with excessive amounts, cellular activity is diminished."

The clinical significance of aberrations in blood calcium values, and the clinical application of calcium therapy have no place in this discussion. We merely wish to record our findings and impressions from a tabulation and comparison of the findings in 110 consecutive blood calcium determinations, recently done.

*Definitions.* *Diffusible calcium* is a combination of ionic calcium and unionized calcium salts. This portion of the calcium content of the blood is the physiologically active portion of the total calcium. Diffusible calcium passes through a colloid impermeable membrane; it normally represents from fifty to seventy per cent. of the total calcium present.

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*Nondiffusible calcium* is the portion which is bound to the serum proteins of the blood. It will not pass through a colloid sac, and is physiologically inert. It follows, as a corollary, that when the serum protein is increased more of the calcium is bound by it and remains nondiffusible and physiologically inert, while the active, diffusible calcium is decreased in amount.

*Total calcium* represents the total amount of diffusible calcium plus nondiffusible calcium found in the blood. Normally, the amount of total calcium ranges from 9.0 to 12.0 mg. per 100 c.c. of blood.

*Inorganic phosphorus*, normally present in amounts from 3.0 to 4.0 mg. per 100 c.c. of blood, is said to exert an important function in the regulation of calcium metabolism. For this reason, whenever it was feasible, a determination of the inorganic phosphorus content was included in the routine examination of blood for calcium content.

*Historical.* The fact that calcium circulates in the blood in two forms was first expressed by Pribram<sup>2</sup> in 1871. He differentiated between the diffusible and nondiffusible forms, and showed that the latter was bound to the serum protein. Rona and Takahski<sup>3</sup> confirmed this in 1911. In 1919, Cushny<sup>4</sup> demonstrated, in a series of experiments on ox-blood serum, that sodium, potassium and chlorine, under a pressure of 150 mm. of mercury, would filter through a collodin sac like an ordinary solution, but that *not all* of the calcium would do likewise; a portion of the calcium was held back.

In their experiments, Von Meysenburg, Poppenheimer, Zucker, and Murray<sup>5</sup> report that from sixty to seventy per cent. of the total calcium content is normally present as diffusible calcium. Neuhauser and Marshall<sup>6</sup> say that only twenty per cent. of the total calcium is ionized. Kramer and Tisdall<sup>7</sup> report their normal total calcium findings to range between 9.0 and 10.5 mg. per 100 c.c. of blood, and showed that nearly all of the calcium is to be found in the serum.

Loeb<sup>8</sup> demonstrated that the amount of calcium which diffuses through a collodin membrane varies in direct proportion to the protein concentration. Updegraff, Greenberg, and Clark<sup>9</sup> found that nondiffusible calcium was not in equilibrium with the total diffusible calcium. Shih-Hao Liu<sup>10</sup> showed that the normal parti-

tion of calcium into its diffusible and nondiffusible fractions was fairly constant, and that in certain diseases either the diffusible or both fractions may be reduced.

#### METHODS USED

*Total Calcium Determination.* The Clark-Collip modification of the Kramer-Tisdall method was used in all these determinations.<sup>11, 12, 13, 14</sup> The *normal* total calcium content was accepted to be from 9.0 to 12.0 mg. per 100 c.c. of blood.

*Diffusible Calcium Determination.* Moritz' method<sup>15</sup> was used in all these tests. The *normal* diffusible calcium content was accepted to be from fifty to seventy per cent. of the total calcium content.

*Nondiffusible Calcium Determination.* The difference between the total and diffusible calcium determinations represents the nondiffusible portion. The normal would, therefore, run between thirty and fifty per cent. of the total.

*Inorganic Phosphorus Determination.* The Benedict-Theiss method<sup>16</sup> was employed in all these determinations. The accepted *normal* inorganic phosphorus content was 3.0 to 4.0 mg. per 100 c.c. of blood.

#### ANALYSIS OF FINDINGS

The records of 110 patients, referred to us during the past few years for blood calcium examination, have been analyzed. The main purpose in this analysis was to determine what, if any, relationship exists between total and diffusible calcium, and between calcium and phosphorus in this series. Diffusible calcium determinations were called for in only 70 of these cases, and phosphorus determinations in only 29 of the series. Therefore, the relative values can be charted in the smaller series only, although certain observations may be made from the larger.

TABLE 1  
Calcium and Phosphorus Determinations  
of the Entire Series

Total Calcium (mg. per 100 cc.) 110 Cases			Diffusible Calcium (mg. per 100 cc.) 70 Cases			Inorganic Phosphorus (mg. per 100 cc.) 29 Cases		
High- est	Low- est	Aver- age	High- est	Low- est	Aver- age	High- est	Low- est	Aver- age
18.0	4.0	9.25	11.0	2.5	4.58	6.25	1.7	3.67

Table 1 is a composite review of the calcium and phosphorus findings of the entire series. The complete record shows almost every combination



possible. No conclusions can be drawn from this; it only indicates the high, low and average values observed in the series. The detailed record of individual cases requires too much space for setting down, and might prove tedious to the reader.

TABLE 2

Total Calcium Determinations								
110 Cases								
Normal Values*			High Values†			Low Values‡		
43 Cases			9 Cases			58 Cases		
(mg. per 100 cc.)			(mg. per 100 cc.)			(mg. per 100 cc.)		
High- est	Low- est	Aver- age	High- est	Low- est	Aver- age	High- est	Low- est	Aver- age
12.0	9.0	11.0	18.0	12.5	14.66	8.9	4.0	7.41
*39.1% of all cases examined showed normal values.								
†8.2% of all cases examined showed higher than normal values.								
‡52.7% of all cases examined showed lower than normal values.								

Table 2 is a classification and analysis of the total calcium determinations of the entire series of 110 cases. It will be noted that normal values were found in less than one-half of the cases; low values predominate.

TABLE 3

Diffusible Calcium								
70 Cases								
Normal Values*			High Values†			Low Values‡		
37 Cases			2 Cases			31 Cases		
(mg. per 100 cc.)			(mg. per 100 cc.)			(mg. per 100 cc.)		
High- est	Low- est	Aver- age	High- est	Low- est	Aver- age	High- est	Low- est	Aver- age
11.0	2.5	5.15	8.0	5.5	6.75	6.9	2.5	3.8
*52.9% of all cases examined showed normal values.								
†2.8% of all cases examined showed higher than normal values.								
‡44.3% of all cases examined showed lower than normal values.								

Table 3 is a classification and analysis of the diffusible calcium determinations of the 70 cases in which this determination was carried out. A little more than one-half of the series showed normal values; a little less than one-half showed low values; only two showed high values. The determination was classified as normal when the diffusible portion of the calcium was between fifty and seventy per cent of the total.

TABLE 4

Inorganic Phosphorus								
29 Cases								
Normal Values*			High Values†			Low Values‡		
12 Cases			9 Cases					
(mg. per 100 cc.)			(mg. per 100 cc.)					
High- est	Low- est	Aver- age	High- est	Low- est	Aver- age	High- est	Low- est	Aver- age
4.0	3.0	3.55	7.0	4.2	5.13	2.5	1.7	2.21
*41.4% of all cases examined showed normal values.								
†31.0% of all cases examined showed higher than normal values.								
‡27.6% of all cases examined showed lower than normal values.								

Table 4 is a classification and analysis of the

inorganic phosphorus determinations in the series of 29 cases in which this determination was carried out. Less than one-half of the series showed normal phosphorus values; high and low values were found in almost equal numbers. The determination was classified as normal when it lay between 3.0 and 4.0 mg. per 100 cc. of blood.

The following three tables, 5, 6 and 7, were compiled from the 70 cases in which both total and diffusible calcium determinations were made. The purpose of these charts is to ascertain whether or not any definite relationships exist between the total calcium, diffusible calcium, and inorganic phosphorus findings when the total calcium values are found to be normal, high, or low.

Table 5 shows that of the series of 24 cases in which the total calcium values were normal, more than one-half showed low diffusible calcium values. Only a little more than one-third of these cases showed normal diffusible calcium values when the total calcium was normal. It also shows that of the entire series of 70 cases only 12.8 per cent. showed normal values in both total and diffusible calcium, and only 2.8 per cent. showed higher than normal values. Added together, only 16.6 per cent. of the series showed normal or higher than normal diffusible calcium values when the total calcium determinations were normal. The phosphorus values were not constant.

Table 6 shows that of the series of 9 cases in which the total calcium values were high, the diffusible calcium values were nevertheless lower than normal in two-thirds of the cases, and normal in only about one-fifth. Of the entire series of 70 cases, only 2.8 per cent. yielded normal diffusible calcium values in the presence of high total calcium, while 8.6 per cent. yielded low diffusible calcium determinations in the presence of high total calcium values. Inorganic phosphorus values were not constant.

Table 7 shows that of the series of 37 cases in which the total calcium values were low, the diffusible calcium values were normal in more than one-half the cases, indicating that the lower the total calcium value the greater is the likelihood of the body's utilizing the calcium present. However, 37.8% of this group showed low diffusible calcium values as well as low total calcium. The inorganic phosphorus values were not constant.

TABLE 5

Normal Total Calcium  
24 Cases

Diffusible Calcium Values 24 Cases			Inorganic Phosphorus Values 8 Cases		
Normal	High	Low	Normal	High	Low
In 9 cases	In 2 cases	In 13 cases	In 3 cases	In 3 cases	In 2 cases
37.5% of this group	8.3% of this group	54.2% of this group	37.5% of this group	37.5% of this group	25.0% of this group
12.8% of series of 70 cases	2.8% of series of 70 cases	18.6% of series of 70 cases	10.3% of series of 29 cases	10.3% of series of 29 cases	6.9% of series of 29 cases

TABLE 6

High Total Calcium  
9 Cases

Diffusible Calcium Values 9 Cases			Inorganic Phosphorus Values 6 Cases		
Normal	High	Low	Normal	High	Low
In 2 cases	In 1 case	In 6 cases	In 4 cases	In 1 case	In 1 case
22.2% of this group	11.1% of this group	66.7% of this group	66.7% of this group	16.6% of this group	16.6% of this group
2.8% of series of 70 cases	1.4% of series of 70 cases	8.6% of series of 70 cases	13.8% of series of 29 cases	3.4% of series of 29 cases	3.4% of series of 29 cases

TABLE 7

Low Total Calcium  
37 Cases

Diffusible Calcium Values 37 Cases			Inorganic Phosphorus Values 7 Cases		
Normal	High	Low	Normal	High	Low
In 21 cases	In 2 cases	In 14 cases	In 4 cases	In 2 cases	In 1 case
56.8% of this group	5.4% of this group	37.8% of this group	57.1% of this group	28.6% of this group	14.3% of this group
30.0% of series of 70 cases	2.8% of series of 70 cases	20.0% of series of 70 cases	13.8% of series of 29 cases	6.8% of series of 29 cases	3.4% of series of 29 cases

*Summary.* A series of 110 cases in which total calcium values were determined has been reviewed. Diffusible calcium values were also determined in 70 of these cases, and these findings have been reviewed in relation to the total calcium values. In addition, inorganic phosphorus values were determined in 29 of these cases, and the results have been shown in the tables.

Of the 24 cases showing normal total calcium values, 9 showed normal diffusible calcium determinations, 13 showed low diffusible calcium, and 2 were above normal in diffusible calcium values. Those with a low proportion of physiologically active calcium predominate in this group.

Of the 9 cases which showed high total calcium values, only two were accompanied by normal diffusible calcium values. Six were low and one was high in diffusible calcium. This tends to prove that high total calcium values are not indicative of adequate calcium metabolism. Though the total calcium value is high, the physiologically active calcium may still be low.

Of the 37 cases which showed low total calcium values, 21 still showed normal diffusible calcium figures. Diffusible calcium was low in 14 of these, and high in the other two. This would tend to show that low total calcium content of the blood indicates, in many instances, that a greater proportion of it than usual becomes physiologically active.

## CONCLUSIONS

There is no constant relationship between total and diffusible calcium content of the blood in this series.

There is no constant relationship between the inorganic phosphorus and calcium content of the blood in this series.

The inability to establish a constant in these relationships should emphasize the importance of determining the *diffusible calcium* content of the blood whenever the determination of the calcium content is requested. The determination of the total calcium content alone does not give a correct picture of the calcium situation in the body;

no conclusion as to the amount of calcium available for physiologic activity can be drawn from this finding alone.

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## REMOVAL OF HUGE BLADDER STONE UNDER SPINAL (NEOCAINE) ANESTHESIA WITH RECOVERY

A. F. BARNETT, M. D.

MENARD, ILLINOIS

Soon after I entered upon my service as prison physician at the Southern Illinois Penitentiary, I received a communication from an inmate serving a long-time sentence. This letter detailed certain urinary symptoms from which the convict alleged he had suffered before he had been sent to the penitentiary, continuing with increasing severity during the entire period of his incarceration.

Investigation showed that it was this man's custom to "present his case" to each new physician who came to the prison but that little notice had been heretofore taken of his complaints, which were regarded as largely malingering to obtain easier work and special favors.

On looking up this convict's "jacket," however, and reading the letters which he had written to my predecessors, I felt that the case was worthy of more investigation than it had previously received. In the mass of detail set forth in the "history," two salient points were conspicuous.

From the Surgical Service of the Southern Illinois Penitentiary.

First, thirteen years before the letter to me was written, the man had thrust a crayon into the urethra. This had escaped from his grasp, and never, so far as he was aware, been evacuated thereafter.

Second, at the present time he asserted that walking made his "stomach feel like leaden weights jolting around inside," while he could never empty the bladder at one time because "it seems something chokes the urine off and tries to force through." On May 25, 1933, the man was called to my office for an examination, which

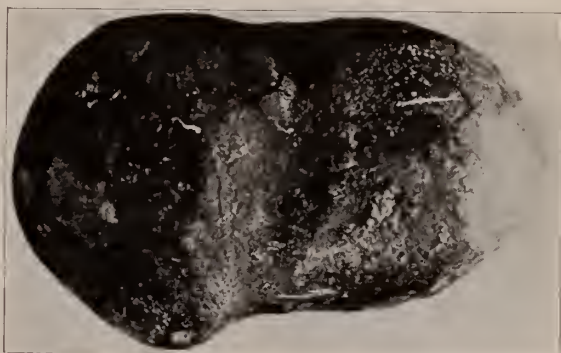


Fig. 1. External appearance of stone as removed from bladder at operation under spinal anesthesia.

brought out the following findings having a bearing on the condition of which he had so long complained.

Age 27 years; height, 5 feet, 8 inches; weight, 120 pounds. Eyes sunken, with dark circles around them; posterior and anterior glands of neck and thyroid palpable; head and chest otherwise negative. On abdominal palpation there was extreme tenderness in the lower quadrants, and suprapubically an indefinite mass could be felt. On rectal palpation a definite mass, seemingly as large as a good sized potato, was made out in the vesical region. Urinalysis was positive for pus and blood.

The cystoscope was passed with some difficulty; visualization was limited because three-fourths of the vesical cavity appeared filled with an opaque body. Only the left ureteral orifice could be made out, and what little of the wall could be seen was hyperemic, with some visible blood clots.

After hospitalization for two weeks, during which time the patient was given a very nourishing diet, pushing fluids as much as possible, operation was carried out. Because of extraordinary size of the bladder mass and the depleted condition of the patient, much attention was given to the selection of the anesthetic. General anesthesia was strongly contraindicated, while the anticipated difficulties ruled out any ordinary local technique.

Having already had a most satisfactory experience with neocaine in spinal anesthesia applied after the



method of Labat, I decided to use this, relying on the greater safety which I have come to believe this particular anesthetic confers to offset the risks involved in handling so difficult a situation.

Labat has used neocaine for spinal anesthesia for seventeen years without a death, either on the operating table or during the postoperative critical period. He believes that with technical skill and clinical judgment other trained men can achieve the same result.

In accordance with the Labat technique, puncture was made between the second and third lumbar vertebrae and a few drops of cerebrospinal fluid were withdrawn, which were permitted to flow directly into an ampoule partly filled with neocaine crystals. Dissolving the anesthetic directly in the cerebrospinal fluid does away with much of the risk involved in using aqueous solutions, although the greatest care and attention to technique are necessary to insure a smooth and absolutely

ning as high as 104° the following day. With the reestablishment of drainage and the daily intravenous administration of 15 grains of methenamine for seven days, the infection was controlled. The sutures were removed on the tenth day, and the catheter on the fourteenth; but when the patient was allowed to sit up in a wheel chair on the sixteenth day, the wound broke down, discharging pus and urine. With another ten days in bed with catheter drainage, convalescence proceeded without further interruption.

In explanation of this stormy postoperative course, it is only fair to explain that no trained nursing service is available in the prison hospital, all attendance being by inmates, except for the doctor and dentist. The negligence of the nurse in permitting the catheter to become obstructed was responsible for the breaking down of the suprapubic wound. Eventually recovery was complete, and the patient is now working in the tailor shop, is apparently well, and has gained 40 pounds in weight on the regular prison diet.

The specimen removed was roughly ovoid and had a greater circumference of 24 cm., the larger end being 18 cm. in circumference, and the smaller 16½ cm. It weighed 250 Gm.

When sectioned, the crayon about which it had been formed was plainly visible. The convict's story of its having been retained in the bladder for thirteen years is borne out by the great number of successive layers of phosphatic deposit exhibited in the section. Young says that "every kind of foreign body will become encysted except pure, clean paraffin." There must, however, be a predisposition to stone formation, which in this particular case was fostered by the patient's imprisonment shortly after definite symptoms of vesical calculus had been first manifested and the subsequent neglect of treatment.

#### COMMENT

The outstanding features of this case appear to me to be 1. the enormous size of the calculus, and 2. the successful employment of spinal anesthesia in a difficult bladder resection.

In these days of readily available diagnostic aids in urology, large bladder calculi are seldom encountered. So far as I have been able to discover by a search of recent literature, that removed by E. E. Keiser and reported by Alexander Randall<sup>2</sup> is the largest on record. In its moist state immediately after removal it weighed 64 ounces, or exactly four pounds. Its longitudinal circumference was 48 cm. and its greatest horizontal circumference, 40 cm. The patient died thirty-six hours after operation, but Randall believes that this is the largest stone ever removed from a living subject. Though my specimen is by no means as large as Randall's, the fact that my patient is not

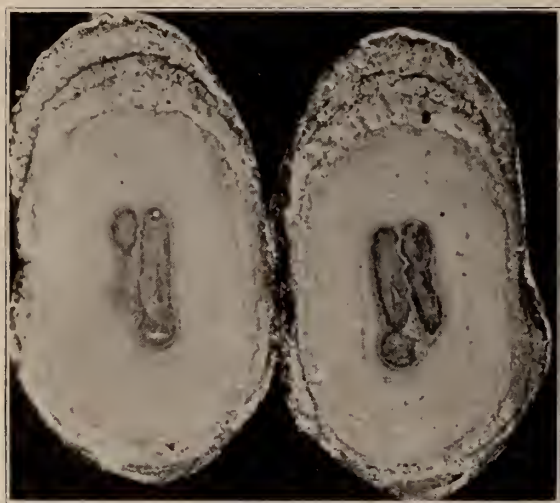


Fig. 2. Appearance of stone when sectioned, showing crayon about which deposits had collected. Dimensions; Greater circumference, 24 cm.; large end, 18 cm.; smaller diameter, 5½ cm.; weight 250 Gm.

safe anesthesia. Labat's method has stood the test of seventeen years' constant employment. By one thoroughly drilled in its simple requirements and equipped with an anesthetic drug which reduces this hazard to its lowest minimum pharmacological tests have proven neocaine to be the least toxic of all spinal anesthetics;<sup>1</sup> even the most difficult surgical situation may be faced with confidence.

The patient was placed in the Trendelenburg position immediately after the injection of the anesthetic, and a suprapubic cystotomy performed. Through this opening we evacuated a huge stone, immediately closing bladder and abdominal wall and leaving a Pessar catheter in the urethra. The bladder was thereafter irrigated three times daily and morphine gr. ¼ given when necessary; methenamine, gr. v, and sodium acid phosphate, gr. v, were also administered three times daily.

On the third day the catheter was allowed to become obstructed, in consequence of which the patient suffered a severe chill and developed a temperature run-

1. Bower, Clark, Wagoner and Burns: Surg. Gyn. & Obs. 54: 882-897, 1932.

2. Alexander Randall: J. Urology, 5:119-, 1921.

only alive but in apparent good general health adds interest to the report here made.

Several writers on the subject of vesical calculus cite the case of Sir William Ogilvie, who could only urinate when he stood on his head. The English surgeon, Cline, attempted to remove this huge calculus, but could only succeed in breaking off a few fragments. Its full dimensions were only ascertained postmortem a few days later. Cline's method as described by Coulson in 1853 (*Lithotrity and Lithotomy*, p. 211), consisted in the employment of a blacksmith's hammer and chisel through a perineal incision, "without anesthesia!" as Young exclaims (*Practice of Urology*, Vol. 1, p. 381).

Randall makes no mention of the kind of anesthesia used in removing the stone he describes. I attribute the comparative ease with which my patient was relieved of his huge burden to the method of anesthesia used and the greater safety, and in consequence greater assurance of the surgeon, of the drug employed to induce the anesthesia.

The almost perfect relaxation of the vesical wall which one obtains with spinal anesthesia infinitely simplifies the surgeon's task in a difficult resection such as this. My experience here has only confirmed the opinion I had formed long before, that for the vast majority of operations below the diaphragm, and those in the pelvis in particular, spinal anesthesia with neocaine, properly given, is superior to all other forms of administration.

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#### ARTIFICIAL TRANSMISSION OF MALARIA AMONG INTRAVENOUS DIACETYLMORPHINE ADDICTS: PRELIMINARY NOTE ON USE OF ATABRINE IN MALARIA

Emanuel Appelbaum and Ben B. Gelfand, New York (*Journal A. M. A.*, May 19, 1934), observed ten cases of malaria, artificially induced, due to or suggestive of intravenous diacetylmorphine addiction. Atabrine was given by mouth to only three patients. The response to this form of therapy was prompt. Within from twenty-four to forty-eight hours the temperature dropped to normal, and within four days the blood smears failed to show schizonts. Atabrine was administered intravenously to three patients. In one case the atabrine was used after the patient apparently failed to respond to the intravenous use of quinine. There was rapid improvement after its use. Atabrine failed to destroy the estivo-autumnal gametocytes. Two patients suffering apparently from cerebral malaria failed to respond to intensive intravenous atabrine therapy. The

treatment of the pernicious form of the disease merits further study. The authors observed no untoward results from the use of atabrine, with the exception of a slight yellowish discoloration of the skin in one instance. This, however, cleared up within a week. It is their impression that this drug is a valuable adjunct to quinine and, in their opinion, deserves further trial.

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#### UNDULANT FEVER DUE TO BRUCELLA OF THE PORCINE TYPE—BRUCELLA SUIIS: REPORT OF A MILK-BORNE EPIDEMIC

C. P. Beattie, Selma, Currie, Midlothian, Scotland, and Raymond M. Rice, Council Bluffs, Iowa (*Journal A. M. A.*, May 19, 1934), present their observations of a milk-borne epidemic of undulant fever of thirty cases. Of these patients, twenty-seven obtained their milk from the same dairy. The dairy, from a herd of twenty cows, supplied approximately eighty households; in eighteen of these, cases of undulant fever developed. *Brucella suis* was obtained in blood culture from six of fourteen patients and from the milk of one of the cows in the herd. The epidemic ceased thirteen days after the stoppage of the sale of milk from the dairy. There is a greater virulence of *Brucella suis* than of *Brucella abortus*. The possibility of milk containing *Brucella suis* must be considered.

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#### HAY FEVER

Blame for hay fever may be pinned on the proteins in the sneeze-producing pollens, rather than on their sugary or starch constituents. This was indicated by a paper presented before the meeting of the American Chemical Society here by Dr. Marjorie B. Moore of the Abbott Laboratories and Dr. Leon Unger of Northwestern University Medical School.

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#### "SOUTHPAWS" NOW MADE TO ORDER

Ann Arbor, Mich.—(S. S.)—New evidence that an injury on the left side of a right-handed person's brain may make him left-handed although leaving his vision undisturbed, was found by S. A. Kirk, a graduate student at the University of Michigan, here, in experiments with rats.

Rats, as well as human beings, are right or left-handed, and Mr. Kirk began his experiments by testing the hand or paw of his rats.

The rats were forced to reach for their food from a narrow dish into which they could not insert their mouths, but could use either of their paws. Having determined whether the rats were right or left-handed, a brain lesion was made in the hemisphere opposite the preferred hand. In the majority of cases such lesions caused a change in handedness of the rats. In other words, a right-handed rat could be made left-handed, and vice-versa.

Effects of brain lesions on man's ability to think, read, write, or speak have puzzled psychologists for years. From observations on men who have had brain lesions as a result of accidents, operations or war injuries, a theory has been evolved which asserts that a lesion on the left hemisphere of the brain of a right-handed person, or a lesion on the right hemi-



sphere of a left-handed person will result in changes in the ability to think, read, speak or write.

#### COMPARATIVE INFANT MORTALITY FIGURES IN ILLINOIS 1933

Only one city in Illinois with a population above 10,000 had an infant death rate last year of as much as 100 baby deaths per 1,000 births. That city was Harrisburg; the rate 104. At the other end of the infant death rate column was Belleville, with a rate of only 23.1 per 1,000 births. These two had the highest and lowest infant death rates among the municipalities exclusive of Cook County.

Among these municipalities the five with the highest and lowest rates, respectively were as follows:

##### Highest Rate

Harrisburg .....	104.1
Cairo .....	87.0
Pekin .....	82.5
Mattoon .....	82.2
Kankakee .....	82.0

##### Lowest Rate

Belleville .....	23.1
Ottawa .....	27.9
Oak Park .....	29.0
Centralia .....	29.7
Moline .....	34.6

### Marriages

WESLEY G. FORSTER, Taylorville, Ill.; to Miss Calista Rose Cleary in Chicago, May 19.

CLYDE JOHN GEIGER to Miss Frances Terry, both of Chicago, May 26.

KENNETH HERBERT HAMMOND, Hoopston, Ill., to Miss Martha Hugus of Gary, Ind., April 27.

ROY LESLIE KENWARD, Melvin, Ill., to Miss Frances Nonnenmacher of Dewitt, Iowa, at Watseka, May 5.

PAUL EMANUEL LANDMANN, Joliet, Ill., to Miss Aileen Marie Burkhardt of Dwight, at Plainfield, May 12.

JAY DONALD MILLIGAN to Miss Leone Daus, both of Elgin, Ill., May 16.

### Personals

Dr. and Mrs. Luther G. Bass, Chicago, observed their golden wedding anniversary, April 22.

Dr. Ernestine V. Kandel, among others, addressed the Chicago Council of Medical Women, June 1, on "Differential Diagnosis and Therapy in Leukemias."

Dr. Grace Hiller, instructor in medicine in the Division of Medical Sciences, University of Chicago, has been appointed director of the student health service at Goucher College in Baltimore, effective in the autumn.

Dr. Max Thorek addressed the Marshall County, Iowa, Medical Society at Marshalltown, Iowa, on May 29 on "An Electrosurgical Method of Obliterating the Gall Bladder."

Dr. William H. Olmsted, St. Louis, addressed a joint meeting of the Belleville and East St. Louis Medical Society and the St. Clair County Medical Society, June 7, on "Insulin Reaction in Treatment of Diabetes."

Dr. Francis L. Lederer, who has been Professor and Acting Head of the Department for a number of years, has been appointed Professor and Head of the Department of Rhinology, Laryngology and Otology, at the University of Illinois College of Medicine. He succeeds Dr. Norval H. Pierce, who is Emeritus Professor.

Dr. Disraeli Kobak delivered on June 21 three addresses before the Western Section of the American Congress of Physical Therapy, under the auspices of the Pacific Physical Therapy Association and the Los Angeles County Medical Society at Los Angeles, Calif., on the subjects: "Electro-Physiology," "President Status of Ultraviolet Therapy" and "Evaluation and Technique of Methods Producing Artificial Heat." On June 25 he delivered the graduation address at the Southern California School of Physical Therapy at San Gabriel, Calif.

Drs. Ralph A. Reis and Robert M. Grier presented "A Comparative Five Year Study of Maternal Mortality at Michael Reese and Evanston Hospitals, 1929-1933" before the fifty-seventh annual meeting of the Chicago Gynecological Society, June 22, and Dr. Edward L. Cornell, "A Preliminary Report on the Maternal Deaths for 1933 in Chicago."

An illuminated parchment award of merit was presented to Matthew O. Foley, editorial director of *Hospital Management*, by the trustees of the American Hospital Association. Dr. Bert W. Caldwell, executive secretary of the association, made the presentation, and speakers included Lewis Bernays, British consul; Dr. Malcolm L. Harris; Dr. Thomas Hugh Scott, Hines, Ill., and Mr. Asa S. Bacon, superintendent, Presbyterian



Hospital. Mr. Paul H. Fesler, superintendent, Wesley Memorial Hospital, was toastmaster.

Dr. Samuel R. Slaymaker, president of the Washington Boulevard Hospital and clinical professor of medicine, Rush Medical College, was guest of honor at a dinner given by 100 friends and colleagues at the University Club, June 7, in recognition of his twenty years' service with the hospital. An oil portrait of the guest of honor was presented to the hospital, and Dr. Slaymaker was presented with a watch and chain. Dr. Vincent J. O'Connor was toastmaster. Among the speakers were Dr. Arthur R. Metz and Dr. James B. Herrick. Photographs of the portrait were given to each one in attendance.

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### News Notes

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—At the Annual Meeting of the Chicago Society of Internal Medicine the following officers were elected: President, G. K. Fenn; secretary, C. F. G. Brown; vice-president, Walter Palmer.

—Speakers before the Chicago Society of Internal Medicine, May 28, included Drs. William C. Buchbinder on "Relief of Thyrotoxicosis by Thyroidectomy"; Willis Stanley Gibson and Edward J. Denenholz, "Rheumatic Heart Disease in Children"; Louis Leiter, "Hypertension and Nephritis"; Richard H. Jaffe, "The Neutropenic State," and James A. Connor, "Amebiasis."

—The state health department has instituted a vaccination campaign against typhoid in eleven counties in southern Illinois. The work is being carried out in Jefferson and Fayette counties and was scheduled to begin early in June in Saline, Williamson, Jackson, Union, Randolph and Madison counties. It will be extended into the remaining counties as soon as facilities permit.

—Six lectures will be given each week in the South Room, Hall of Science, at a Century of Progress by members of the Chicago Medical Society. Dr. Austin A. Haydn gave the introductory address, May 28, on "Conservation of Hearing." Other speakers during the week were Drs. Leon Unger, "Hay Fever"; Frank F. Maple, "Prenatal Care"; Hilmer William Elghammer, "Rheumatic Infection in Children"; Laurence E. Hines, "Heart Disease," and Gilbert Fitz-Patrick, "Is Cancer Curable?"

—With the opening of a new tuberculosis unit in the University of Chicago Clinics, June 11, it will be possible to care for these patients for long periods and to treat their tuberculosis as it is treated in tuberculosis sanatoriums, according to the *News Bulletin* of the Division of Biological Sciences. Heretofore, tuberculous patients have been admitted to the University Clinics only for diagnosis and treatment of complications. The assembling of these patients on one floor and in the same division will be an experiment, it was pointed out, to show, first, whether such a unit may be operated successfully from a medical standpoint, and to prove whether the unit may be operated at a cost low enough for the typical sanatorium patient to meet.

—The Division of Medical Sciences of the University of Chicago announces the award of the Howard Taylor Ricketts Prize for 1934 to Dr. Paul E. Steiner and Thomas C. Grubb, Ph.D. Dr. Steiner was given recognition for his work on "The Rôle of the Avian Tubercle Bacillus in the Etiology of Hodgkin's Disease" and Dr. Grubb for his work on "Studies on the Coccus Forms of *Corynebacterium Diphtheriae*." The first award of this prize was made in 1913 to Dr. Esmond R. Long and the late Dr. George L. Kite. The announcement of the 1934 award was made on May 3, the anniversary of Dr. Ricketts's death, which occurred while he was conducting research on typhus fever in Mexico.

—Dr. Irving S. Cutter, dean of the medical school, Northwestern University, was appointed health editor of the *Chicago Tribune* on June 17.

The new editor of the *Tribune* "How to Keep Well" column received his degree in medicine from the University of Nebraska, of which he was dean of the college of medicine from 1915 to 1925. During the War, Doctor Cutter was in charge of medical service at Camp Gordon, Georgia.

Doctor Cutter was the first editor of the *Nebraska State Medical Journal*. He is a member of the editorial board of the *Annals of Medical History*. He is the author of numerous monographs dealing with science and education, including "The Origin of Life," 1929; "School of Medicine," 1930; "The History of Obstetrics and Gynecology," 1933, and "The History of Physical Therapy," 1933.

## Deaths

ANNA ALBERS, Chicago; Illinois Medical College, Chicago, 1908; aged 70; died, May 29, of septicemia, otitis media and diabetes mellitus.

ROBERT H. BERG, Chicago; Jenner Medical College, Chicago, 1916; aged 56; died, May 22, of agranulocytosis.

ARTEMAS BROWN, Berwyn, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1887; aged 74; died, April 28, of chronic myocarditis.

RICHARD C. BURTON, Savanna, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1878; for many years health officer; aged 84; died, May 4, of abdominal carcinoma and arteriosclerosis.

THOMAS J. CONLEY, Chicago; Rush Medical College, a Fellow, A. M. A.; 1885; on the staff of the West Side Hospital and formerly on the staff of the Cook County Hospital; aged 75; died, May 13, of coronary thrombosis.

WILLIS H. DAVIS, Peoria, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1879; aged 81; died, May 9, of heart disease.

CHARLES BARTLETT DEARBORN, Mount Sterling, Ill.; Rush Medical College, Chicago, 1890; a Fellow, A. M. A.; secretary of the Brown County Medical Society; aged 66; died, May 16, of cerebral thrombosis.

PINKARD CHARLES DOWNS JR., Chicago; Meharry Medical College, Nashville, Tenn., 1916; member of the Illinois State Medical Society; aged 50; died, March 15, in the Cook County Hospital, of pericardial effusion and coronary occlusion.

CHARLES WILLIAM ESPY, Chicago; Rush Medical College, Chicago, 1892; member of the Illinois State Medical Society; aged 70; died, May 22, of lobar pneumonia.

ANNA J. FRONK-SROM, Chicago; College of Medicine and Surgery, Chicago, 1903; aged 73; died, May 11, of pneumonia, diabetes mellitus and hypertension.

ROBERT WALLACE HARDON, Chicago; Harvard University Medical School, Boston, 1893; a Fellow, A. M. A.; for many years professor of general and orthopedic surgery, Post Graduate Medical School; aged 68; died suddenly, June 1, in the Post Graduate Hospital, of heart disease, following an operation on the gallbladder.

JAMES D. HARLAN, Fairfield, Ill.; Missouri Medical College, St. Louis, 1890; member of the Illinois State Medical Society; aged 72; died, April 28, of organic heart disease.

CARL ARTHUR HEDBLUM, since 1926 professor of surgery at the University of Illinois College of Medicine, Chicago, died suddenly, June 6, of coronary thrombosis, while attending a meeting of the American Surgical Association in Toronto, Canada. Dr. Hedblom was born in Dayton, Iowa, March 5, 1879. He was educated at the Colorado College where he received his B.A. in 1907, M.A., in 1908, and an honorary D.Sc., in 1921. In 1911 he received his M.D. from Harvard University Medical School and a Ph.D. from the Mayo Foundation of the University of Minnesota in 1920. He was an intern at the Massachusetts General Hospital

from 1911 to 1913 and then went to Shanghai, where he was professor of surgery at the Harvard Medical School in China until 1916. In 1916 he entered the Mayo Foundation as a fellow in surgery and from 1919 to 1924 was head of the section on general and thoracic surgery at the Mayo Clinic. Dr. Hedblom was professor of surgery at the University of Wisconsin Medical School, Madison, from 1924 to 1926, when he came as professor of surgery to the University of Illinois College of Medicine. He was a member of the Society of Clinical Surgery, American Surgical Association and the Western Surgical Association; member and past president of the American Association for Thoracic Surgery and fellow of the American College of Surgeons. Dr. Hedblom was head of the surgical department at the Research and Educational Hospital of the University of Illinois and senior surgeon to St. Luke's Hospital, consulting surgeon at the Edward Hines Jr. Hospital, Hines, Ill., and the Municipal Tuberculosis Sanitarium.

HARRY IZNER, Chicago; Chicago College of Medicine and Surgery, 1912; member of the Illinois State Medical Society; aged 48; died, May 24, of carcinoma of the esophagus.

LUDWIG A. KIERLUFF, Chicago; Northwestern University Medical School, Chicago, 1893; member of the Illinois State Medical Society; aged 70; died, May 9, of heart disease.

SIDNEY B. MCLEOD, Chicago; Northwestern University Medical School, Chicago, 1897; a Fellow, A. M. A.; past president of the American Association of Railway Surgeons; fellow of the American College of Surgeons; on the staff of the Jackson Park Hospital; aged 59; died, April 3, of coronary thrombosis and appendiceal abscess.

WILLIAM DAVID O'BYRNE, Chicago; Rush Medical College, Chicago, 1899; a Fellow, A. M. A.; veteran of the Spanish-American War; aged 72; died, May 25, of pneumonia.

CAMPBELL A. STOKES, Edinburg, Ill.; Eclectic Medical Institute, Cincinnati, 1882; member of the Illinois State Medical Society; aged 75; died, April 22, of heart disease.

RICHARD C. TAYLOR, Elburn, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1893; aged 73; died April 25, of acute nephritis.

ANTHONY MICHAEL THOMETZ, Chicago; Rush Medical College, Chicago, 1895; aged 63; died, May 13, of myeloma.

ORLEY MORTON WATERS, East St. Louis, Ill.; St. Louis University School of Medicine, 1920; member of the Illinois State Medical Society; aged 50; on the staff of the Christian Welfare Hospital, where he died, March 14.

BLANCHE EDITH WEBBER, Chicago; Harvey Medical College, Chicago, 1902; a Fellow, A. M. A.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; aged 67; died, April 18, of coronary thrombosis.

THOMAS H. WILSON, Chicago; National Medical University, Chicago, 1903; a Fellow, A. M. A.; aged 66; died, March 2, of heart disease.



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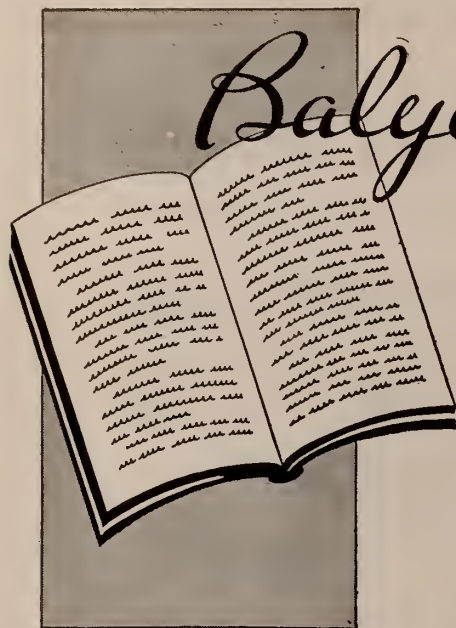
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From "MIGRAINE, Diagnosis and Treatment", 1933. By R. M. Balyeat, authority on diseases due to allergy.

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## HISTORY

(This side to be filled in by the person to be examined)

1. Name ..... Country of birth.....Date of birth.....
2. Address .....Race .....
3. Single, married, widowed, divorced.....
4. Occupation .....
5. How often have you changed your work?.....Why? .....
6. Is your work dangerous or unhealthy?.....
7. Is it indoors or out?.....
8. Is it light where you work?.....Dark?.....Dusty? ....Smelly?....Noisy?....Crowded?....
9. At work are you usually seated, standing, or walking? .....
10. How many hours a day do you work?.....How many days a week?.....
11. Have you a room and bed to yourself?.....With window open?.....
12. What are your hours of sleep?.....Is your sleep restful?.....By what is it disturbed? .....
13. Where do you eat your meals?.....
14. How much time do you take for each meal?.....
15. Of what foods are you especially fond?.....
16. How much do you drink daily of:
 

Water .....	Tea .....	Soft drinks .....
Milk .....	Coffee.....	Alcoholic drinks .....
17. Do you eat candy?.....
18. Do you have a bowel movement daily without the use of drugs?.....What laxative do you use?.....How often? .....Do you have pain or bleeding with bowel movement?.....How often? .....
19. Have your menstrual periods been regular?.....
20. Have they interfered with your usual occupations? .....
21. Have pregnancies and confinements been free from accidents? .....
22. How often do you bathe?.....
23. What regular exercises do you take in addition to your work?.....
24. Do you share in church, social, political, club, or trade associations?.....
25. What are your pleasures or recreations?.....
26. Have you had any of the following diseases and at what ages?
 

Tuberculosis .....	Scarlet fever .....	Tonsilitis .....
Malaria .....	Diphtheria.....	Frequent colds.....
Rheumatism .....	Typhoid fever .....	Syphilis or gonorrhea.....
27. Do you have dyspepsia?.....
28. Do you have headaches?.....
29. Are you short of breath on going up stairs?.....
30. Do you catch cold easily and often?.....
31. Are you subject to sore throats?.....
32. Have you been vaccinated against small pox, typhoid fever, diphtheria?.....When? .....
33. Have you had any accidents, broken bones or surgical operations? .....
34. How often do you consult you dentist?.....
35. Are you as well at present as formerly?.....If not, why?.....
36. Do you remember any important diseases of your parents or family which may have affected your own health? .....

Remarks: .....

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## Book Reviews

**CORRECTIVE PHYSICAL EDUCATION:** By Josephine Langworthy Rathbone, M.A., Instructor in Physical Education, Teachers College, Columbia University, New York City. 292 pages with 153 illustrations. Philadelphia and London: W. B. Saunders Company, 1934. Cloth, \$2.50 net.

This work covers reconstructive health and physical education: physical handicaps, mental and emotional maladjustments, physical therapy. Tells students how to apply modern exercises designed to correct faulty developments or to compensate the young person so afflicted. The work is splendidly fitted to meet the needs of students of physical education.

**PRACTICAL TREATISE OF DISEASES OF THE SKIN.** By Oliver S. Ormsby, M. D. With revision of the Histopathology in this edition by Clark Wylie Finerud, M. D. Fourth edition, thoroughly revised. Illustrated with 619 engravings and 3 colored plates. Philadelphia: Lea & Febiger, 1934. Price, \$11.50.

In this work much reconstruction has been done. Thirty-six new diseases are described, twenty rewritten, and the entire work brought up-to-date.

One hundred and twenty-four new illustrations have been added. These are from the author's collection and from new contributions of colleagues as heretofore, articles have been selected on the various subjects which contain complete bibliography to date of publication.

**SURGICAL CLINICS OF NORTH AMERICA:** (Issued serially, one number every other month.) Volume 14, Number 2. (New York Number—April, 1934) 293 pages with 71 illustrations. Per Clinic Year (February, 1934, to December, 1934.) Paper, \$12.00; cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1934.

The contributors to this number are Drs. Babcock—Beekman Beer—Cole—Colp—Coryllos—Donovan—Dudley—Eckerson—Ellsworth Eliot, Jr.—Farrar—Fankfeldt—Garlock—Goldbloom—Weeks—Held—Hinton—Keyes—Klingenstein—Ladin—Lillienthal—MacFee—Potter—Ramsdell—Shore—Smith—Solley—White—Wilensky—Woolsey.

**I KNOW JUST THE THING FOR THAT.** By J. F. Montague, M. D. New York, The John Day Company. 1934. Price, \$2.00.

This work discusses general medical problems, it is more directly aimed at no less than one person in each family. It reveals the wide range of the author's investigations—"Grandmother's remedies"—those nationally advertised "Pills" and "Capsules"—are fearlessly described and numerous "scientific methods" are discussed for the reader's benefit.

**MODERN DRUG ENCYCLOPEDIA AND THERAPEUTIC GUIDE.** By Jacob Gutman, M. D. New York: Paul B. Hoeber, Inc., 1934. Price, \$7.50.

This work is intended for the use of physicians, dentists, pharmacists and medical students and is especially designed to meet the demand of the progressive

(Continued on page 26)



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**Book Reviews**

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physician for information concerning the most modern therapeutic agencies. It is also intended to provide for the clinician, whether general practitioner or specialist, a wide choice of preparations of use in the numerous pathologic conditions encountered in his daily service to the sick; also to assist him in the selection of a remedy for a particular purpose.

**BEHIND THE DOCTOR.** BY LOGAN CLENDENING, M.D.  
with 147 illustrations. New York. Alfred A. Knopf, 1933. Price \$3.75 net.

In this work the author builds up the epic of man's fight against disease. He takes you on a journey through all ages and countries, among people with vivid personalities and queer notions and burning ideas. It is a fascinating story told in language the layman can always understand, by an expert who is also a master of narrative.

**INDUSTRIAL TOXICOLOGY.** BY ALICE HAMILTON, M. D.  
NEW YORK & LONDON. HARPER & BROTHERS, PUBLISHERS. 1934. PRICE \$3.00.

Dr. Hamilton is an outstanding authority on the subject of Industrial Toxicology. This book is written especially for the general practitioner in which the subject matter has been brought up-to-date and the text is strictly practical. Of necessity much historical discussion and many details of laboratory examinations have been omitted from this volume, but an adequate bibliography will guide the interested reader who wishes to penetrate deeper into the subject.

This work is not a mere abstract of the author's larger and more comprehensive book, but an entirely new book written from a different point of view than has been the case in any previous work.

Some of the new features of the work stand out conspicuously:

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Chronic coal tar benzene (benzol) poisoning does not always give a leucopenia as has been lately emphasized. The author quotes 22 cases with an excessive anaemia with only moderate leucopenia, in these cases the white count alone might not have revealed the condition. The increasing number of cases of aplastic anaemia are related to the use of benzol in the industries.

The concluding chapter is on radioactive substances. The practitioner who does his own x-ray work will find this very interesting; it contains a brief historical sketch. If he is inclined to be disdainful of the dangers of the x-ray this chapter will jolt him into an appreciation that the danger is considerable.

In addition to the subject and author indices there is an excellent bibliography that is valuable for library reference. Every doctor will find this a valuable book and especially those practicing in an industrial community as is Detroit. We recommend this book enthusiastically. It is outstanding.

**THE MANAGEMENT OF FRACTURES AND DISLOCATIONS AND SPRAINS.** By John Albert Key, M. D., and H. Earle Conwell, M. D. With 1,165 illustrations. St. Louis. C. V. Mosby Company. 1934. Price \$15.00.

This book is written for the student, general practitioner and the surgeon. It is intended to furnish a practical working guide in the management of fractures, dislocations and sprains; a chapter dealing with workmen's compensation laws is included. Forms of treatment described are those which the authors have found reliable and practicable.

**SURGERY OF A GENERAL PRACTICE.** By Arthur E. Hertzler, M. D., and Victor E. Chesky, M. D. With 472 illustrations. St. Louis. The C. V. Mosby Company. 1934. Price \$10.00.

This work is intended to aid the general practitioner in his care of so-called minor surgery. The present-day demand is for services at a minimum cost. To meet this requirement diseases and injuries must be treated as far as possible in the office and in the home. The Doctor must know how little equipment is really essential, the authors' aim has been to reduce treatment to its simplest terms recommending only time tried measures.

**SPINAL ANESTHESIA TECHNIC AND CLINICAL APPLICATION.** By George Rudolph Vehrs, M. D. Illustrated. St. Louis. C. V. Mosby Company. 1934. Price \$5.50.

This work constitutes a survey of the experimental and clinical records in the field of spinal anesthesia of the past forty-nine years.

**TUBERCULOSIS IN THE CHILD AND THE ADULT.** By Francis Marion Pottenger, M. D. Illustrated. St. Louis. The C. V. Mosby Company. 1934. Price \$8.50.

In this work the author has discussed in a compact volume the leading facts about tuberculosis as they have been discovered in recent years, and as the author has observed and interpreted them in his practice. This

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## Book Reviews

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information the author feels should be of great value especially to students and younger practitioners who have not had the privilege of following contemporaneously the advancement that has been made during the past three or four decades. To certain major problems the author has given more than usual attention. Among these are: Childhood infection, its relation to the problem of prevention; its relation to active tuberculous disease in the child; its relation to tuberculosis in the adult.

**MEDICAL CLINICS OF NORTH AMERICA.** (Issued serially, one number every other month.) Volume 17, Number 6. Chicago Number—May, 1934. Index Volume. Octavo of 266 pages with 38 illustrations. Per clinic year July, 1933, to May, 1934. Paper \$12.00; cloth, \$16.00 net. Philadelphia and London. W. B. Saunders Company, 1934.

Contributors to this number are Drs. Baker, Bald, Barborka, Brawley, Coggesall, Coogan, Culver, Dalitsch, de Tkatas, Elliott, Fenn, Foley, Gerstley, Gibson, Hall, Heinzick, Hirsch, Keeton, Meyer, Ricketts, Sloan.

**THE COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION:** Volume XV (Papers of 1933—Published 1934). Edited by Mrs. Maud H. Mellish-Wilson and Richard M. Hewitt, B. A., M. A., M. D. Octavo of 1,230 pages with 210 illustrations. Philadelphia and London. W. B. Saunders Company, 1934. Cloth, \$11.50 net.

This volume has been confined largely to articles of practical interest to the general practitioner, diagnostician, and general surgeon. To all articles are appended references to publications. Bibliographies are omitted. Papers written in 1933 numbered 443. Of these 144 are printed in full, 21 are abridged, 40 are abstracted, and of 268 only the titles are given.

**THE MEDICAL AND ORTHOPAEDIC MANAGEMENT OF CHRONIC ARTHRITIS.** By Ralph Pemberton, M. D., and Robert B. Osgood, M. D. New York. The Macmillan Company, 1934. Price \$5.00.

This is a practical exposition of the subject of chronic arthritis for practitioners, internists and orthopaedic surgeons. It has been written because of the convictions of the authors that chronic arthritis is largely a preventable and curable disease and that the current knowledge of the nature of the disease and of measures necessary to combat it is not as generally diffused throughout the medical profession as it should be.

**INTERNATIONAL CLINICS.** A quarterly of illustrated clinical lectures and especially prepared original articles on all subjects pertaining to medicine in all its specialties. Edited by Louis Hamman, M. D. Volume Two. Forty-four series. 1934. Philadelphia, Montreal, London. J. B. Lippincott Company. Price —.

Contributions to this quarterly has been made by leading members of the medical profession throughout

the world. The International Clinics offer a personal consultation with the best minds in medicine.

**THE ESSENTIALS OF PHYSICAL DIAGNOSIS.** By Robert W. Buck, M. D., Assistant Professor of Preventive Medicine and Instructor in Physical Diagnosis, Tufts College Medical School; Physician to Boston Dispensary. 259 pages with 21 illustrations. Philadelphia and London. W. B. Saunders Company, 1934. Cloth, \$3.00 net.

The purpose of this book is to introduce the student to the principles of non-instrumental physical examinations, to provide him with a concise description of methods which he will later be called upon to use daily.

**MODERN CLINICAL SYPHILOLOGY.** By John H. Stokes, M. D., Duhring Professor of Dermatology and Syphilology, University of Pennsylvania; Member, Commission on Syphilis and Cognate Diseases, League of Nations Health Organization. Second Edition, revised and entirely reset. 1,400 pages with 973 illustrations and text figures. Philadelphia and London. W. B. Saunders Company, 1934. Cloth, \$12.00 net.

In this revision fifteen of the originals twenty-three chapters have been completely rewritten. A new chapter on relapse and progression has been added.

The enormous expansion of the field has compelled the rewriting of "Cure," relapse and reinfection conceptions from the clinical and experimental sides; the reinterpretation of the dark field and serological sections for the practitioner.

**PRACTICAL METHODS IN BIOCHEMISTRY.** By Frederick C. Koch. Baltimore. William Wood and Company, 1934. Price \$2.25.

**THE MEDICOLEGAL NECROPSY.** Published under the auspices of the American Society of Clinical Pathologists. Edited by T. B. Magath, M. D. Baltimore. The Williams & Wilkins Company, 1934. Price \$2.50.

This work deals with the determination of the cause of death in supposedly criminal cases, as well as some others which are subject to review in courts of law.

**DISEASES PECULIAR TO CIVILIZED MAN.** By George Crile, M. D. Edited by Amy Rowland. New York. The Macmillan Company, 1934. Price \$5.00.

This book presents the theme that certain diseases such as neurocirculatory asthenia, hyperthyroidism, peptic ulcer, diabetes and epilepsy, are related diseases and result from the tension of highly civilized life which causes a disturbance of the glandular and automatic nervous system, particularly the adrenal glands.

The subject matter is presented from its embryological, physiological and clinical and therapeutic aspects. Dr. Crile concludes with the corollary that removal of part of the adrenal glands or destroying the sympathetic nerves about them will cure these diseases. He has devised an operation for carrying out this procedure which is described in the book in the minutest detail, giving also the indications for the operations, post-operative complications, etc.



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Vol. 66, NO. 2

OAK PARK, ILL., AUGUST, 1934

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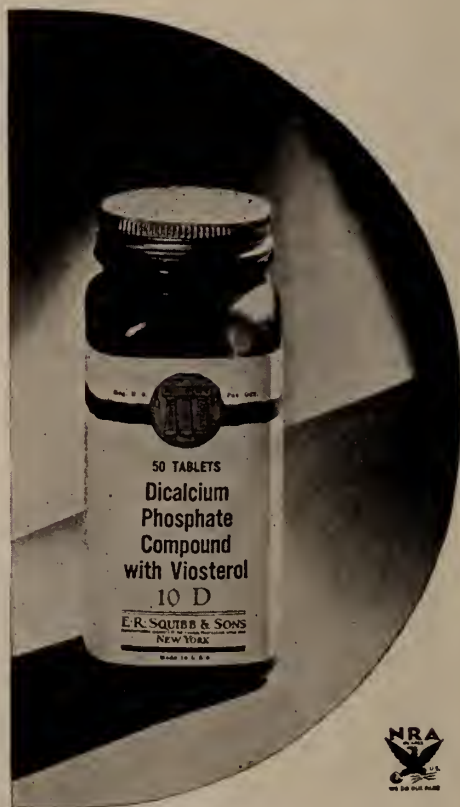
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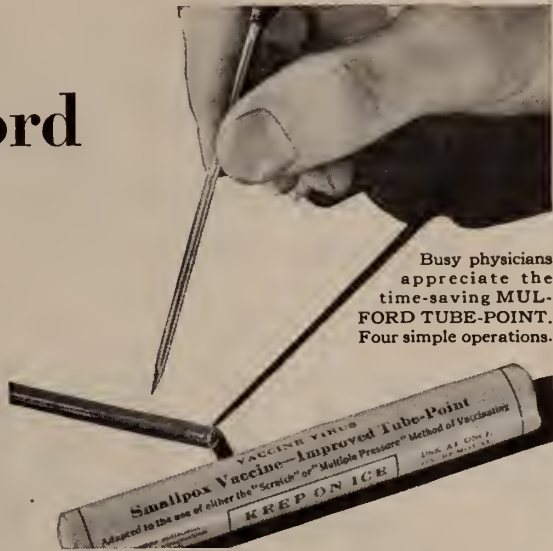
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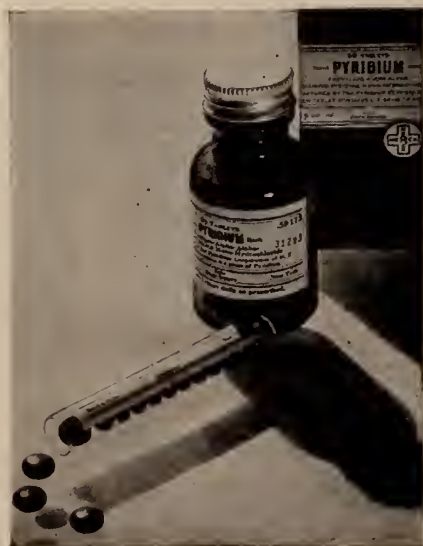




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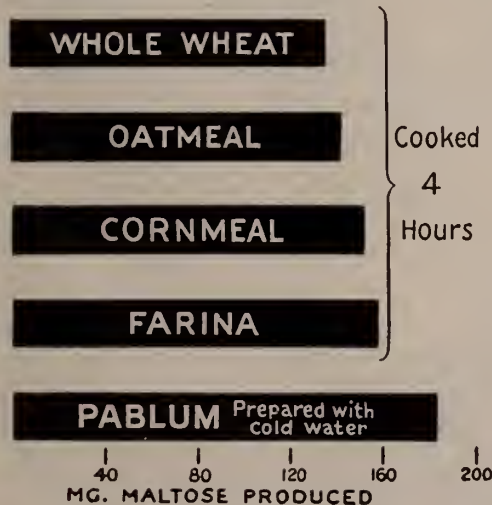


# Why Starch of PABLUM Is More Quickly Digested than that of Long-cooked Cereals

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*Large photomicrograph:* Pablum mixed with cold water—portion of large flake. Pablum flakes are honeycombed with "pores" or air-spaces (note light areas). This porosity permits ready absorption of digestive fluids by the entire flake. No starch granules appear—they have been completely ruptured.

*Inset:* Farina cooked 1/2 hour—clump of tissue including starch granules. Note density of clump and lack of porosity. Many starch granules, such as are present in raw cereal, remain unchanged in form.

BESIDES being thoroughly cooked and readily digestible, Pablum supplies essential vitamins and minerals, especially vitamins A, B, E, and G, and calcium, phosphorus, iron, and copper. It is a palatable cereal consisting of wheatmeal, oatmeal, cornmeal, wheat embryo, alfalfa leaf, beef bone, brewers' yeast, and salt.

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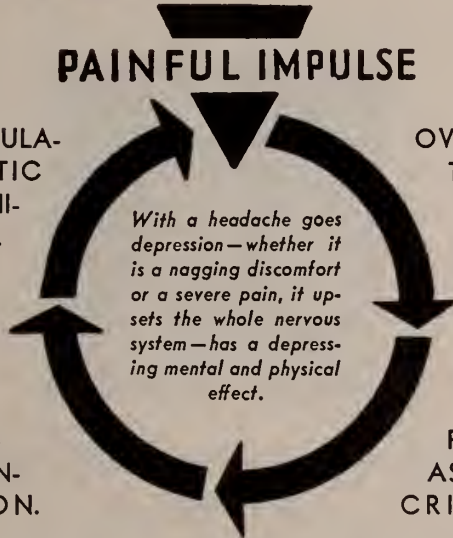
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# ILLINOIS MEDICAL JOURNAL

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THE ILLINOIS STATE MEDICAL SOCIETY

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## Editorials

### IN PASSING TAKE A LOOK AT MICHIGAN'S NEW WOODEN HORSE—ITS SINAI "HEALTH SCHEME"

At times the capacity of the great American gullet to swallow any fool idea that the modern P. T. Barnums stick into the great American throat amazes even the biggest gulls among the gullibles.

If Jonah had lived in America today, the probabilities are that he himself, would have been out, swallowing the whale instead of letting the whale swallow him. Undoubtedly too, Jonah would write after his name—"M. D."

At the rate in which the medical profession is playing the boob and letting itself be used as bait, lure, come-on, go-between and cats-paw for those forces of supertaxation, bureaucracy and high priced socialism such as are foredoomed by the law of averages, the routine of history and the rhythm of experience to destroy our careful and humane civilization that has been literally built out of the brain and the blood and the sinew of almost four generations of self-sacrificing patriots and upon the corner stone of individual rights,—there is no doubt that the tribe of fools could easily pick a king from the ranks of the overtrusting as well as overworked "M. D.'s." In passing take a look at Michigan's new wooden horse—its Sinai "health scheme."

How many doctors can give a lucid epitome of any benefit to physician, patient, populace or state that will result to any degree from the highly propaganda-ed "State Medicine" or "Health Insurance" schemes? Or of anything but misery in its wake?

Yet this exacting evil is even today ensconced in our midst. In Michigan the door has been flung wide for its entrance. And that it enters with a veil over its face makes it no less an evil.

In very truth State Medicine and Compulsory Health Insurance have changed from a transient mirage for the American people, to a throat gripping menace. At present, the focal point of at-

tack of this terrible enemy seems to be Michigan and the weapon the new Michigan Health scheme.

Socialistic approval of health insurance is as ubiquitous as the drouth. One of the most terrible blows that has come to the ethics of the profession is the approval in principle and for experiment by the Michigan State Medical Society of a health insurance plan providing complete medical, surgical, dental, hospital, nursing and optical care to the lower paid classes at a flat yearly sum of slightly more than \$100 per family or \$27.88 per person.

The one string on the scheme is that it shall be "professionally controlled" which is not such a communistic drawback as it might seem to be at first sight. Michigan gets good backing from communistically inclined wealth elsewhere. There is where the peephole lies. A "peephole," too, that is all "peephole" and not one whit "peep-ul."

Further the Milbank Memorial Fund of New York, an endowment that lives in the tempo of millions, openly declares itself for compulsory health insurance and smiles upon Michigan. The string on this is "State control." Which of course means, politics practicing medicine. What the casual man fails to see is the hidden contact between Milbank and Michigan. Each spells socialized medicine, either by "voluntary" or "compulsory" route. Each of these items is a straight line approaching the same focus.

The action of the Milbank Fund is not surprising. The principal supporter of the Committee on the Costs of Medical Care, this tendency was written all over that highly unfair, and greatly criticized report. Their henchman Nathan Sinai, has mixed the Michigan pie.

The Milbank Fund's action is after all, merely the grand gesture of the laity.

With the Michigan State Medical society, it is another matter. Here is a group of physicians playing Delilah without a blush, and hiding behind the word "voluntary."

For on April 12, at Flint, Michigan, the House of Delegates of the Michigan State Medical society held a special meeting where preliminary endorsement was given to a system of voluntary health insurance entitled "Mutual Health Service." When the Michigan society has its annual meeting in September final decision will be reached as to whether this service shall become operative. Meanwhile investigation is being

made as to the determination of the legal status of the plan, and the necessary legal procedure as to the organization of the plan. If the scheme becomes operative it is expected that the Michigan State Medical Society will limit its operation to a few counties for "preliminary experience." Now "preliminary experience" is a rare phrase in this connection.

Already the alumni of the medical school of the University of Michigan has to practice in competition with the alma mater. Here is another pig in a poke being wished upon the long suffering practitioners in this equally long suffering state in which the way of the socialist is easy and the way of the patriot is as hard as politics and socialists can make it, while the path of the taxpayer is like that of poor Christian in John Bunyan's "Pilgrim Progress."

The real high light on what is being visited upon the taxpayers and the medical profession in Michigan shines out in splendor with the information that the Michigan State Medical society has decided upon this plan as the result of an economic survey in Michigan which was made under the direction of a special (?) committee by that same Nathan Sinai who was a former investigator for the Committee on the Costs of Medical Care, that was mainly supported by the Milbank Memorial Fund that has now come out for State medicine, and for Compulsory Health Insurance, and which report was practically repudiated by the majority of the honest men in the medical profession and hugged to the bosoms of all the parlor pinks and political jobbists and high paid leaches of the laity fortunate enough to be on the thick payrolls of misguided economists and would-be philanthropists. Also of the snoopers, the snipers, and the men who must mind everybody else's business, brook no interference in their own and are hell-bent to commercialize medicine and to deliver the science and practice of medicine into the hands of department store chiefs, and political bureaucrats. Behind all this is the hand that rules the soviet and would like to rule the world,—the hand of communism, of lay dictation of conscience and the hand of chaos.

Some of Mr. Sinai's remarks may as well be interpolated right here. They will give the profession something to think about and probably inspire more than one man who respects the science of medicine to start a fund to send a



few missionaries into the misguided wilds of Michigan.

Says Mr. Sinai, in part:

"In the proposed experiment, if an industry in some county of Michigan is interested enough to *experiment* with the medical profession, undoubtedly that industry would make the Service *compulsory* for the employes engaged. In that way it would get away from the question of volition. (Ed.'s note—yet we were to understand were we not that Michigan was taking up *voluntary* health insurance? But now getting back to Mr. Sinai's comment—)

"The fact is we would be very fearful of leaving it on a purely voluntary basis to the members in that industry became what would result?

"A few people in that industry who know that they need surgery, whose wives are going to have babies, who know they are going to have specific medical services within the next two weeks or the next month would sign up and just as soon as the service *was secured they would sign off.*"

In other words, Mr. Sinai admits right straight from scratch that to make the Michigan experiment succeed it must be from the start a matter of *must*, rather than of *may*.

Further this astute modern lawgiver, the new Moses of socialism, the ultimative Mr. Sinai, remarks with a great expenditure of phrase if not of felicity that while this service will be voluntary in *name*, that it will not be operative unless made compulsory by employers and that it should not be made operative unless 75 per cent of the employes in any given industry come under the plan. "For otherwise," Mr. Sinai explains, "we will get a very dangerous selection in our group of population."

Now getting down to items and brass tacks it evolves that the preliminary form of this plan calls for complete health insurance to include the services of physicians, dentists, registered nurses, pharmacists, laboratories, hospitals, as well as drugs, medical and surgical, and optical appliances. The cost to the insured person would be \$27.88 per person, of which the general practitioner would receive \$5.00 a year plus 50c for a report of an annual physical examination and 25c for a report of immunization. An additional \$3.00 would be allotted for the services of specialists including surgeons. This amount would be made available to the general practitioner if he was deemed competent to render specialized

service. Dentists would receive \$5.00 while \$2.50 would be allotted for nursing services; \$5.00 for hospital services; \$1.00 for laboratory services; administration \$2.42 and \$1.21 towards a surplus. It is interesting to note that the same amount of \$5 is set aside for the physician, dentist and hospital which presupposes that the demands for these three services are of equal magnitude.

The plan would exclude hospital services for mental illnesses and tuberculosis and covers full hospital payment for but a period of 21 days during any one year. For any illness requiring hospitalization for more than 21 days but less than 90 days, the Service would pay 75 per cent of the per diem hospital charges.

The services of a special nurse would be limited to a period of thirty days for any one year or sixty days for the services of a visiting nurse. The subscriber would pay the original 25c charge on each prescription and the Service would pay the balance.

This plan is for employed persons only and the cost of the subscription shall either be borne by the employe or jointly by the employe and his employer. Under action of the House of Delegates, however, the Service would not be available to any person who earns more than \$1,500 a year. Thus, a man and wife and three children where the husband was earning \$1,200 a year would have to pay \$139.40, or 11 per cent of his income, to be covered by the Service. One-half the amount might be paid by the employer if he elects to do so.

Please notice that 11 per cent of a man's income for "voluntary health insurance" is about forty per cent of the twenty-five per cent of an income usually allotted by the professional budgeteers as the amount permissible for a man or a family to pay for shelter! And far more than that allowed for apparel. Getting further along into this scheme it is still more interesting to see how much of this eleven per cent is allotted for medical care. Physicians would be limited to 1,000 patients under the plan so that the gross income of the general practitioner would be limited to \$5,750. Provision is made for absolute free choice of physician, apparently without regard to whether the physician is a member of the Society or not. Direction of the plan would be vested in a committee of eleven of which three are physicians. Other members



of the committee are one dentist, one pharmacist, one registered nurse, one hospital superintendent, two laymen representing industries, and two laymen representing recipients of the health services.

Now, how any man in his sense can call this a *medically scientific majority*, it will be very interesting to learn. This editor has run up against similar combines before and probably so has every other man of medicine who has had to go out and buck the finger of politics in the pseudo-scientific set ups of sovietistic schemes.

Elaborate detail and precise provision is made for both local and district supervision under the set-up of the plan, though in every instance these provisions, though seemingly "for the profession, and of the profession and by the profession" where a matter of medical rights is concerned, actually pivots so that the bulk of the balance of power lies with the laity. It is a veritable leaning Tower of Pisa in this angle of it all. Now in a special committee report adopted by the Michigan delegates, the plan is based on the belief that there will be a probable development in the United States towards *compulsory health insurance in some form or other*. The Michigan report itself says blithely: "If the experiment with the Mutual Health Service is successful, the profession will be in an exceedingly strong position to direct public opinion and thereby control legislative action in the interest of public welfare."

Michigan is getting down to admit that politics rather than professors is leading medicine around by the nose. But let us proceed.

All of these ideas bear right out the unchanging contentions of the sane section of the organized medical profession that a system of *voluntary* health insurance would be unable to interest sufficient persons to secure the scope of risk implied by the word "insurance" itself; and so that all plans for "health insurance" must necessarily include some form of compulsion; and that *state controlled compulsory insurance* will be reached easily through the stepping stones of various of these so-called "voluntary" schemes.

Now in all due justice to the State of Michigan and its Medical Society it must be admitted that the keenest of medical economists are racking their brains for a way in which to build a bridge between the old order and the new

but considering the engineering done by Nathan Sinai on the "Report of the Committee on the Costs of Medical Care" it is hardly to be expected that this honest group of doctors would care to accept in good faith any more elaborate structures from Mr. Sinai. After all, "Nate" is not a licensed M. D.! Nor, an acceptable Doctor of Engineering either! Somehow there exists quite a suspicion as to the verities of his structures.

It does not make any difference with how many fine phrases and long winded sentences and elaborate citations, a fact is wrapped around, it remains the same fact, nothing less and nothing more. State controlled, compulsory health insurance is a very, very bad business, for medicine, for doctors, for the citizenry and for the country. In Europe it has been tried and found wanting. Moreover, the application of the "panel" system or of "state medicine" or of "compulsory health insurance" has practically fetched about the debacle of medical progress in those countries wherein the nation has been saddled with such a millstone. It does not matter how it is called, this nefarious system. It is always the same old evil.

Because it is new, here in America, because it is not a handicap to the nation that has been tried, and cast forth, is no argument for its adoption. The control of medical care by forces and agencies outside of the medical profession is unthinkable, but certainly serious thought should be given and deep investigation made before the profession puts itself under the thumb of any bureaucracy, even one self-arrogated from its own ranks. The advancement of the medical profession and social progress must go hand in hand. One cannot destroy the other and live. Unfortunately the medical profession has always had the same attitude towards the public welfare that the pelican has towards its young—to feed it with blood from its own breast.

The scheme evolved by Michigan comes principally from Mr. Nathan Sinai who went abroad with Dr. Henry A. Luce. Epitomized the scheme is here outlined:

The scheme proposed involves the payment into a central treasury of a stipulated sum for each person assured of medical service. From this fund the general practitioner, the specialist, the dentist, the nurse, the hospital, the druggist,

and so on, will be paid *pro rata*. Nothing is said about the butcher or the landlord.

As now planned, this American version of the mutual health service idea promises to be unlike any of the existing twenty-four European health insurance plans, in that it will provide every manner of health service for a flat annual fee. How about food and shelter?

Just what that fee is to be has not been finally determined as yet. However, a tentative figure of \$118 has been named.

Let it be repeated that one of the findings of the preliminary investigation of the subject of health insurance (costing the Michigan State Medical Society about \$15,000, all told), was that, figured over a long period, the annual health cost of the average person runs about as follows annually:

General practitioner of medicine .....	\$ 5.00
Report of annual physical examination .....	.50
Report of immunization .....	.25
Medical specialists' services .....	3.00
Dental services .....	5.00
Nursing services .....	2.50
Hospital services .....	5.00
Drugs, medical, surgical, optical appliances.....	2.00
Laboratory services .....	1.00
Total .....	\$24.25

Adding to this total the sum of \$2.42 for administration costs and 5 per cent of the total, or \$1.21 for the purpose of establishing a surplus, the framers of the proposed Michigan plan arrive at a total of \$27.88 per person as a tentative annual fee.

For the purpose of administering the plan, the committee estimates that the average family consists of four and a fraction persons. It has therefore set \$118 as the tentative fee for which the family, regardless of whether it has two members or a dozen or more, may subscribe to the Mutual Health Service. Will this subscription be a "may" or a "must?"

For this amount it is proposed that the head of the family and his dependents shall be assured of full medical, surgical, dental, hospital, nursing, and optical care, including the cost of prescribed drugs, trusses, braces, and the like. Where are the shoes and overcoats?

On the administrative side, the suggested set-up is this: There is to be a board of governors consisting of eleven members. This number is to comprise three medical men, one dentist, one pharmacist, one nurse, one hospital superintendent, two representatives of industry, and two

representatives of the lay public. How long before the lay quartet will run the whole show?

It will be the duty of this board to supervise the administration of the plan and to constitute a board of review for all matters referred to it by the county or district committees, made up in turn of five members representing the county medical, dental, hospital, nursing, and pharmaceutical organizations. See where the laity gets in its work?

As one of the results of the thorough study of the question of health insurance made by the entire committee in this country and by the committee of two, Dr. Luce and Mr. Sinai, sent to England, Michigan hopes to be able to avoid in her own plan the evils and weaknesses apparent in the projects thus far studied. For example, the committee feels that the combination of the dole and health insurance, as found in England, is distinctly undesirable.

Three cardinal points in the proposed plan are: 1. Free choice of physician by the subscribing family; 2. Absolute control of the program by the medical profession without governmental or lay interference; 3. The exclusion of any efforts to exploit health insurance commercially according to its propagandists.

"Keep politics out of it!" "No profit-making commercial exploiters!"

These are the slogans of the Michigan State Medical Society as it presses toward its goal of making Michigan the first state in the Union to have a system of so-called health insurance *administered and controlled solely by the medical profession*. But is that the truth?

But remember that last year this same body turned thumbs down on any tangible idea of health insurance, only to embrace it whole-heartedly on a second and later consideration, and now will actually launch a system of socialized medicine—a system which it intends shall be *the medical profession's own undertaking in the field of socializing medical care*. But how long and by what part of the medical profession will such a system be controlled?

There is a suspicious similarity too between those principles and those set down as tenets by the Milbank Fund through its representative John A. Kingsbury, secretary of the fund, who has been busied lately in making a great many speeches. Perhaps these similarities should be called "Sinaisms" since Mr. Sinai seems to be



the man behind the gun in both instances. For compulsory health insurance under state control Kingsbury advances as the idea emanating from the Milbank Memorial Fund:

1. Compulsory sickness insurance for all families with annual incomes of less than \$3,000 or \$5,000.

2. Plan to be grounded on a state compulsory basis.

3. Medical benefits to fall into two classes:

(a) First to include general practitioner, hospital care, and perhaps prescribed medicines;

(b) Second class, not mandatory, to include services of medical specialists, dentistry, nursing, laboratory and clinic service, etc.

4. General practitioner can be paid a sum, according to Mr. Kingsbury, equivalent to at least \$7.50 per insured person (amount presumably to be determined by legislation).

5. Total cost of insurance per person estimated at \$36.00 a year to be financed 20 per cent from taxes and 80 per cent from direct contributions of insured persons, or contributions shared between employer and employees, or borne entirely by the state.

6. Lay supervision of financial and executive problems.

7. Professional supervision for professional personnel and problems, with a judicial agency, combining lay and professional representatives to deal with complaints and grievances.

"European experience," declares Mr. Kingsbury in admitting the contention of organized medicine, "shows clearly that every voluntary scheme is merely a bridge to a compulsory scheme. \* \* \* Unfortunately, many of the worst abuses which develop under voluntary schemes are carried over into the compulsory stage \* \* \*."

Mr. Kingsbury's "tentative proposal" calls for paying the general practitioner \$7.50 per insured person, pointing out that the practitioner who serves 1,000 potential patients would receive a *gross income* of something like \$7,500 and added "the practitioner who serves 2,000 obviously would receive more."

While declaring that his proposal does not call for "State medicine or public medicine or the socialization of medicine," the title of the newspaper release for Mr. Kingsbury's address was "Urges Study for Compulsory Health Insurance and State Control." The Kingsbury plan involves reorganization of present methods for

the delivery of medical services and while it presumes to include no cash benefits, would include them in fact if no better method could be devised. Mr. Kingsbury urged leadership upon California for the new State system inasmuch as California already has a State Senate Committee on Investigation of the High Costs of Illness. "Experience and occasion thus combined to give California an opportunity to blaze the trail in the search for a better way to furnish health service and medical care to the people," said Mr. Kingsbury.

Digesting these facts with a bit of care, would seem to re-emphasize what has been said in these columns with repeated frequency before, "No matter how you coat this bunch of bunk, it is still the same old raucous ballyhoo."

It is a shame that men of trained minds and a knowledge of human nature will swallow such a mess. Doctors are notoriously credulous. Of late years the bulk of the rank and file has become pretty desperate. But even our credulity and our desperation and our professional optimism is no excuse for standing by while the hand of communistic destruction forces such a terrible monster of bureaucratic levy as is compulsory health insurance upon the already overburdened backs of a wearied populace. If health insurance, compulsory or otherwise, actually functioned as it is supposed to do, that would be a different matter. But actually it aids no man but the politician.

Shakespeare said, "What's in a name? A rose by any other name would smell as sweet."

With apologies to the bard of Avon let it be connoted, "What's in a name? Communism in any other guise smells as offensively." And that does double for communism masquerading as any such Santa Claus stunt as this so-called "health insurance scheme" of the Sinais, the Milbanks and other misguided foundations, funds, and red medicine propagandists.

### THE ATTORNEY GENERAL OF ILLINOIS WINS FIRST ROUND IN COURT FIGHT AGAINST CORPORATIONS PRACTICING MEDICINE

On July 6 in Chicago the attorney general of the state won a preliminary legal skirmish against the United Medical Service, Inc., 23 East Jackson Blvd., when Superior Judge James J. Kelly refused to vacate an order granting the



state leave to file quo warranto proceedings against United Medical Service, Inc.

The state's efforts to halt the operation of the corporation is by an action that would force the officers to show by what right the institution is maintained.

The attorney general charges that the United Medical Service, Inc., is a corporation practicing medicine in violation of state laws.

Judge Kelly's ruling will result in a trial of issues in the case. The court granted the request of the attorney for the corporation for a jury trial, and also gave the corporation attorney sixty days in which to file a bill of exception and thirty days in which to demur to the petition for quo warranto.

### WAYNE COUNTY, MICHIGAN DOCTORS ARE NOT ALL AGREEABLE TO MUTUAL HEALTH INSURANCE PLAN

According to the *Detroit Medical Times*, July 16, 1934, the Wayne County Medical Society, Committee on Elections, gave out the following data in answer to a questionnaire relative to mutual health service plan, the replies were as follows:

Answers to the questionnaire on the Mutual Health Service Plan of the Michigan State Medical Society, as returned by members of the Wayne County Medical Society:

1. Do you wish the Wayne delegates to oppose the action of the Michigan House of Delegates with reference to an experimental plan of insurance?

Yes .....265      No ..... 51

2. Do you wish the Wayne delegates to use their own judgment?

Yes .....144      No .....145

### DINITROPHENOL DANGEROUS IN "REDUCING" NOSTRUMS

The "reducing racket" has a group of new and dangerous drugs, dinitrophenol and related compounds. Racketeers are selling these drugs in fat reducers in spite of reports of deaths caused by their compounds, says W. G. Campbell, Chief of the Food and Drug Administration. "Reducing agents containing these drugs," says Mr. Campbell, "have sprung up like mushrooms all over the country, and are endanger-

ing the lives of patrons. The Federal Food and Drugs Act has no jurisdiction over products of this type, dangerous though they may be. All that the Food and Drug Administration can do is to warn the public that these compounds are dangerous."

Clinical evidence shows, Mr. Campbell said, that these drugs act by increasing the metabolic rate. This amounts to a speeding up of the body processes, resulting in a destruction of the tissues, including fat, to provide fuel for the accelerated metabolism. Common symptoms are increased temperature, pulse or respiration, or copious sweating. In particular, Mr. Campbell warned, these drugs should not be used by individuals suffering from chronic rheumatism, alcoholism, tuberculosis or diseases of the heart, liver or kidneys, as poisonous and otherwise harmful effects are even more likely to manifest themselves. There is also some evidence that they may cause profound disturbance of the blood-forming organs.

These drugs, in common with many others, may serve a useful purpose when the dosage is properly adapted to the needs of the individual patient, provided there are no contra-indications to its use, he says. Proper dosage and indications for use, however, as well as prompt discovery of toxic effects, can be determined only by a skilled physician. Furthermore, there may be unexpected harmful effects that are not disclosed by the first tests. Such effects can be determined conclusively only after extensive trial and use, in addition to the tests which should in all cases be made before the preparation is offered to the public.

### Correspondence

#### THE MANNER IN WHICH WESTERN HOSPITAL ASSOCIATION FEATURED COMPULSORY HEALTH INSURANCE

Hospital Forum  
Portland, Oregon

June 26, 1934.

Dear Dr. Whalen: I wish to compliment you on the editorial fearlessness with which you are treating socialism in medicine. I hope you will permit me to reprint some of your editorials in our journal.

Because you may not be aware of the manner

in which the Western Hospital Association featured compulsory health insurance at its recent Sacramento convention I am forwarding copies of our magazine covering that subject. You will note how I was taken to task by Dr. French, yet applauded by R. D. Brisbane (both in May issue).

The Milbank Fund may work through hospital associations in the East, hence the significance of the California effort.

GEORGE L. GREENE, Editor.

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PRESERVE THE OLD RELATIONSHIP  
BETWEEN PHYSICIAN AND PA-  
TIENT AND KEEP UNCHANGED  
THE HIGH IDEALS

Mississippi State Medical Association  
Office of the President  
Natchez, Miss.

May 5, 1934.

*To the Editor:* During my term of office as President of the Mississippi State Medical Association I have enjoyed reading the ILLINOIS MEDICAL JOURNAL very much. It is filled from cover to cover with interesting and instructive reading matter. The scientific articles are of a high order of excellence. It is ably edited.

I was especially interested in the articles dealing with medical economics. This subject is one that I believe to be of great importance during these days of economic change that is prevalent throughout our land. This subject has not received in the past from the profession as a whole the consideration that it should. There are economic problems before the profession today that must be settled in a manner satisfactory to both the medical profession and the public, if we would *preserve the old relationship between physician and patient and keep unchanged the high ideals that have governed the conduct of the physician in the past*. The public expects the medical profession to take the lead and present a satisfactory solution of these problems. We cannot solve these problems if we do not study the situation and do constructive planning. Organized medicine must not content itself by simply meeting and condemning this or that solution; we must criticize constructively if we would justify to the public our right to leadership in matters pertaining to the practice of medicine.

As President and on behalf of the Mississippi

State Medical Association, I wish to extend to the Illinois State Medical Society our greetings and best wishes for a very interesting and successful annual meeting this month.

J. W. D. DICKS,  
President.

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DOCTOR WINS SUIT AGAINST ONE OF  
THE CHISELING INSURANCE  
COMPANIES

*To the Editor:* On July 3, 1934, there ended in the Circuit Court of Cook County a case which will be instructive to all doctors who take care of the occasional case of an employe injured while at his work.

In 1930 one of my regular patients came to me with a hand infection produced by an injury occurring during his work. I treated him. The last time was about forty days after the injury. A week after he first consulted me the Continental Casualty Company sent me a blank form asking for a report on his injury, which I filled out and returned to them. The same was done with one or two later report blanks.

After the patient was well I sent *him* a bill for services, making my regular charges to him as to any of my other patients. A few days later I received a letter from the insurance company asking for an itemized bill, which I sent him. Later I received a check from the insurance company for about 50 per cent. of my bill and a letter saying that the check was in conformity to fees they were regularly paying to other doctors. I returned the check with a letter saying that the fees charged were my regular fees which I expected to be paid, that I did not allow anyone else to determine the value of my services, and that I did not do enough work for them to justify giving them a special price or discount.

Later I received from them a letter saying that my charges "were not in conformity with the usual and customary rates and were considerably more than the amount designated by the Industrial Commission of this state which has jurisdiction over such matters." They tried to deceive me into believing that the Industrial Commission had established a fee schedule.

I replied that the Industrial Commission had no jurisdiction over my fees to my private patients. Later I sued the patient for the bill in a Justice Court and got a judgment, though the

insurance company lawyer represented him and tried to persuade the Justice that the Industrial Commission had set certain fees. He then appealed the case and the appeal recently came to trial with the result that my bill was allowed.

The Chicago Medical Society furnished an attorney to represent me at both trials with the hope of establishing a precedent against these "chiseling" insurance companies, and the society has now won two other such cases.

Let me state just what this case determines for you.

1. You can collect your regular fees in cases of industrial accidents if you have *not* made any agreement as to fees with the employer or the insurance company.

2. The Industrial Commission or even the State of Illinois cannot set your fees. If there is a dispute the Court or perhaps the Industrial Commission, in cases of workman's compensation, may pass upon reasonableness of the fees.

3. Don't let the Insurance Company "bluff" you out of your regular fees if you have made no definite agreement with them.

4. The Chicago Medical Society is working to protect your financial interests.

LESLIE W. BEEBE.

Oak Park, Ill.

#### WOMANS AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY—OFFICERS FOR 1934-35

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First Vice-President—Mrs. William R. Cubbins, 425 Arlington Place, Chicago.

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man.

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Joe Daviess	Lee	
Stephens	Bureau	
Winnebago	LaSalle	
Boone	Putnam	
McHenry	Marshall	
Carroll	Woodford	
Ogle	Livingston	
DeKalb		
Kane		
4TH DISTRICT	5TH DISTRICT	6TH DISTRICT
Rock Island	Tazewell	Adams
Henry	McLean	Brown
Mercer	Mason	Cass
Stark	Logan	Pike
Henderson	DeWitt	Scott
Warren	Menard	Morgan
Knox	Sangamon	Calhoun
Peoria	Montgomery	Greene
Hancock		Macoupin
McDonough		Jersey
Fulton		Madison
Schuyler		
7TH DISTRICT	8TH DISTRICT	9TH DISTRICT
Macon	Champaign	Jefferson
Piatt	Vermilion	Wayne
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Shelby	Edgar	Wabash
Moultrie	Coles	Franklin
Bond	Cumberland	Hamilton
Fayette	Clark	White
Effingham	Jasper	Williamson
Clinton	Crawford	Saline
Marion	Richland	Gallatin
Clay	Lawrence	Johnson
		Pope
		Hardin
		Massac
10TH DISTRICT	11TH DISTRICT	
St. Clair	DuPage	
Washington	Will	
Monroe	Grundy	
Randolph	Kendall	
Perry	Kankakee	
Jackson	Ford	
Union	Iroquois	
Alexander		
Pulaski		

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## REPORT OF EDUCATIONAL COMMITTEE

*June-July, 1934*

One of the chief summer activities of the Committee has been the arrangement of public health programs for the Century of Progress, Hall of Science, sponsored by the Chicago Medical Society. Health lectures have been given every afternoon except Sunday by members of the Society. The public, if the attendance is an indicator, seems to be interested and physicians who have been on the programs have felt the time well spent.

65—Physicians have been scheduled to give health addresses before lay groups during the two months.

Many requests for health programs during the coming season have been received and taken care of.

## RADIO

37—Radio programs were given during the period. Station WAAF was burned during the Stock Yards fire and has just opened new studios at the Palmer House with two programs a week from the Illinois State Medical Society. The WGN Tuesday broadcast was discontinued for the summer because of special Century of Progress programs. This station, however, has asked the Committee to resume the broadcasts the first of October. Station WJJD has been used all summer.

## SCIENTIFIC SERVICE

6—Scientific speakers have been scheduled for county medical society programs. A new list of scientific speakers is now in the process of being compiled; when finished, it will be furnished the officers of county medical societies and no doubt will offer many suggestions for scientific programs during the year.

2—Clinics for handicapped children were held by Warren County Medical Society and Whiteside County Medical Society. These were both highly successful, with many follow-up cases reported and a number of new cases presented.

Arrangements are being made to furnish programs during the year to the Scott, Iowa, County Medical Society, the Paris Hospital of Paris, Illinois, and Rock Island County Medical Society.

## PRESS RELEASES

774—Newspaper health columns were sent out during the two months.

40—Newspapers received the regular monthly health article.

450—Popular health articles for posting on bulletin boards were furnished Chicago libraries.

484—Similar articles were furnished down-state libraries.

10—Articles were furnished the Red Cross headquarters.

10—Popular articles were sent to Central Y. W. C. A. of Chicago for posting in the Health Education Department.



### SPECIAL SERVICE TO COUNTY MEDICAL SOCIETIES

Special notices relative to county medical society meetings were sent to physicians, as follows:

- 179—Franklin County.
- 22—Randolph County.
- 141—Jefferson-Hamilton County.
- 361—LaSalle County.
- 20—Perry County.

The Committee furnished newspaper publicity as follows concerning these county medical programs:

- 45—Madison County.
- 41—Franklin County.
- 50—Whiteside County.
- 60—Jefferson-Hamilton County.
- 115—LaSalle County.
- 27—Perry County.

- 94—Chicago Woman's Club and the Women Physicians of Chicago in their Navy Pier Health programs.

This same service is offered all county medical societies and has proven very beneficial to societies now using it. This is a splendid means of keeping your county organization before the public and holding the interest of the editors of your papers.

### MISCELLANEOUS CONTACTS

The Public Health Chairman of the Illinois Federation of Women's Clubs submitted to the Committee her plan for health work during the year. This was approved and copies were mimeographed in the office of the Committee for the clubs in the first ten districts of the Federation.

Material has been compiled and mimeographed for the Woman's Auxiliary.

The Committee was represented at a conference on high school health programs sponsored by the Illinois Congress of Parents and Teachers.

Two series of popular programs have been arranged for Central Y. M. C. A. of Chicago.

The Committee wishes to call attention again to the material which is available in its Chicago office, copies of radio talks may be secured for local use, package libraries on all popular health topics will be loaned physicians, material for use in local newspapers is already prepared and approved for publication.

Respectfully submitted,

JEAN McARTHUR, Secretary.

### "HEAVY WATER" AND TUMOR GROWTH

The experiments of William H. Woglom and Lawrence A. Weber, New York (*Journal A. M. A.*, April 21, 1934), with sixty mice indicate that deuterium, in the amounts that it was possible to administer as "heavy water," had no demonstrable effect on the growth of mouse sarcoma 180 or mouse carcinoma 63. In order to be certain that the deuterium had been absorbed by the mice and by their tumors, the proportion of deuterium to normal hydrogen in the water that these contained was determined by measuring its refractive index.

### STANDARD TREATMENT OF PROCEDURE IN EARLY SYPHILIS: RÉSUMÉ OF MODERN PRINCIPLES

John H. Stokes, Philadelphia; Harold N. Cole, Cleveland; Joseph Earle Moore, Baltimore; Paul A. O'Leary, Rochester, Minn., and Udo J. Wile, Ann Arbor, Mich., for the cooperating clinics, and Thomas Parran, Jr., Albany, N. Y., and R. A. Vonderlehr and Lida J. Usilton, Washington, D. C., for the United States Health Service (*Journal A. M. A.*, April 21, 1934), collaborate in a presentation of a uniform type of procedure in the treatment of early syphilis which is the product of a genuinely massive investigation of world-wide scope, sponsored by the League of Nations Health Organization and carried through in the United States by the combined efforts of the United States Public Health Service and a group of five university clinics aided by the generosity of several donors. The material embraces the records of 75,000 cases of syphilis, of which 3,244 were examples of early syphilis followed for six months or more, and 383 followed for as long a period as five years or more. These figures, while not in themselves impressive, express an aggregate material larger than any as yet fully evaluated in the literature and are entirely capable of serving as a basis for a definition of the aims and methods of modern effective treatment for early syphilis. The time covered ranges from 1916 to 1931 for the collection of the cases, and twenty months for the study of the records, so that the period embraces essentially that of modern syphilologic practice, and its conclusions may be accepted as applicable to the work of today.

### MONILIASIS OF THE SKIN IN DIABETES

E. T. Traut, Cleveland White and R. B. Hemphill, Chicago (*Journal A. M. A.*, April 21, 1934), present two cases of diabetes complicated by infection with *Monilia*. The first patient received the usual fungicides without improvement; instead, the condition became much aggravated. The allergic constitution previously manifested by urticaria and the precocious endarteritis probably contributed to the severity of the fungous disease. The second, older, patient also had a predisposing obliterating endarteritis. This patient showed the "id" reaction to the fungous toxin about the eyebrows. He had received no treatment prior to admission to the hospital. Both patients responded rapidly to competent diabetic management without local fungicidal medication. Therefore competent diabetic management seems to be the deciding factor in the treatment of *Monilia* infection of the skin in cases of diabetes.

### ANTIDOTE FOR ACUTE MERCURY POISONING

Sanford M. Rosenthal, Washington, D. C. (*Journal A. M. A.*, April 21, 1934), used sodium formaldehyde sulfoxylate as an antidote in twelve dogs, nine of which were saved from a fatal oral dose of corrosive mercuric chloride, when administered by mouth and intravenously within an hour and a half after the poison had been taken. The nine surviving animals

were protected against kidney damage, as shown by the lack of elevation of the blood nonprotein nitrogen. In the dogs that succumbed following this therapy or following intravenous therapy only, no significant renal lesions were demonstrable histologically. The author employed this therapy in ten cases of corrosive mercuric chloride poisoning in human beings. The results have been confirmatory of the experimental observations. The fact that no fatalities and no appreciable kidney damage occurred in any of these cases is suggestive of the value of the therapy in view of a mortality of approximately 25 per cent as reported by recent investigators and with renal injury occurring in a further percentage of the survivors. However, it is usually impossible to know the amount of mercury absorbed by these patients, and final conclusion can be drawn only from an extensive series of cases.

#### JEFFERSON HEALTH LEADER OF HIS TIME

New York City, April 13.—Thomas Jefferson was praised here today as the "father of vaccination practice in America" by Samuel L. Antonow, president of the American Druggists Syndicate Fellowship, on the 181st anniversary of the birth of the third president of the United States (April 13th).

"Vaccination was first applied by Dr. Edward Jenner in 1789 for smallpox," Mr. Antonow stated. "A dozen years later, shortly after ascending the presidency in 1801, President Jefferson caused members of his family to be vaccinated, thus throwing in his influence with medical progressives of his time. For this, he was attacked by his political enemies as a "maniacal innovator" and criticized as a dangerous radical, much as President Roosevelt and his New Deal are criticized today in some quarters.

"Busy man that he was, Jefferson found time to carry on correspondence with Jenner and other medical leaders of his time and to preach the doctrine of immunization. When a delegation of Indians called on him, Jefferson not only had them vaccinated, but entrusted to their leader, Chief Little Turtle of the Miamis, a supply of vaccine for the members of his tribe. Shipments of virus came to him and he distributed them far and wide."

#### PULMONARY MONILIASIS

Henry J. Bakst, J. Beach Hazard and John A. Foley, Boston (*Journal A. M. A.*, April 14, 1934), observed three cases of pulmonary moniliasis, one being an infection secondary to pulmonary tuberculosis; the other two were primary infections. A marked variation in the clinical picture of pulmonary moniliasis was observed. Excellent results were obtained with the use of iodides and with iodides supplemented by vaccine in the treatment of the cases of primary infection. There are means of demonstrating the relationship of *Monilia* recovered from the sputum to the disease process in the patient. Agglutination reactions proved to be of uncertain value in the establishment of a diagnosis. It is important to consider a diagnosis of pulmonary moniliasis in cases of unproved and atypical tuberculosis.

The authors suggest that, in the wide group of cases clinically classified as chronic bronchitis, *Monilia* should be considered as one of the many possible etiologic agents.

#### STAPHYLOCOCCUS TOXOID IN TREATMENT OF PUSTULAR DERMATOSES

Daniel J. Kindel, Cincinnati, and Maurice J. Costello, New York (*Journal A. M. A.*, April 21, 1934), treated forty-two patients with pustular dermatoses including twenty-eight cases of acne vulgaris, eight of sycosis vulgaris and six of furunculosis with staphylococcus toxoid. No patient received less than 2 cc. total dosage, the maximum being 15.5 cc.; the average was 6.5 cc. per case. Of the forty-two cases, eight were slightly improved and thirty-four were unimproved or worse at the end of treatment. Furuncles developed in two cases after large doses of toxoid had been administered. The authors believe that although their series of cases is small, the results appeared to be so definitely unsatisfactory that continuation of this method of treatment seemed unwarranted and that caution should be exercised in becoming overenthusiastic about the value of staphylococcus toxoid until further reports confirm or deny their observations.

#### DEVELOPMENT OF TETANUS ANTITOXIN FOLLOWING ADMINISTRATION OF TETANUS TOXOID

P. A. T. Sneath, Toronto, Ont. (*Journal A. M. A.*, April 21, 1934), states that of twenty-nine persons given three doses of tetanus toxoid, significant amounts of antitoxin developed in twenty-eight, a titer of at least 0.1 unit per cubic centimeter of serum being reached in the majority, or twenty. From five to seven months after the last dose there was, in general, a reduction in the antitoxin level, but twenty-seven still showed demonstrable antitoxin, the majority, twenty-five, showing 0.01 unit or more. This is further evidence that active immunization with tetanus toxoid might be adopted advantageously by certain groups in whom the hazard of tetanus is greater than in the general population.

#### LAYMEN IN MEDICINE EXCEED M. D.'s

More laymen make their living directly or indirectly from the practice of medicine than do physicians, states Dr. Thomas Parran, statistician of the Metropolitan Life Insurance Company. Only 29 per cent. of the medical dollar ever reaches the pocket of the doctor. There are in the United States, actively practicing, some 142,000 doctors, about 21,000 of them connected with medical institutions, the rest in private practice.

At the same time, in hospitals and other medical institutions, or engaged in the sale of commodities to the profession, there are somewhat more than 509,000 other persons.

#### ALL WET

Pedagog—"Name the constituents of quartz."

His Father's Son—"Pints."—*The Bulletin* (Sydney, Australia).



## Original Articles

### THE HISTORICAL DEVELOPMENT OF THE DIAGNOSIS OF HEART DISEASE

WALTER L. BIERRING, M. D.

President Elect, American Medical Association.

DES MOINES, IOWA

The historical development of the present knowledge and recognition of the diseases of the heart and vascular system is the result of three avenues of investigation, anatomical, physiological and clinical, and often through a co-ordination of all three forms of scientific approach.

Around the heroic figure of Vesalius and his school of anatomy at the University of Padua in the 16th Century is centered the beginnings of our knowledge of the anatomic structure of the heart and the larger blood vessels.

The student of medicine today who recognizes the name of Vesalius only in association with a small foramen in the base of the skull, can hardly realize that it is to his great genius we owe the entire scheme of human anatomy, as a study involving accuracy of observation and description.

The further knowledge of the heart and its disorders was advanced more particularly by the teachings of his followers, Fallopius and Fabricius, and perhaps greater in some phases, by that of the distinguished Florentine painter, Leonardo di Vinci, the creator of artistic anatomy and anatomical illustrations. He made excellent drawings of the cardiac valves, vessels and muscles, and gave the first description of the auriculo-ventricular bundle.

The outstanding figure of the succeeding 17th Century, and particularly in the history of the circulatory diseases, was William Harvey who by the discovery of the circulation reaped the heritage of the new anatomy developed under the stimulating influence of Fabricius at Padua.

Osler, in his Harveyian oration in 1906 before the Royal College of Physicians of London, refers to the first announcement of this epochal event in these words, "At ten o'clock on a bright spring morning, April 17, 1616, an unusually large company was attracted to the new Anatomical Theatre of the Physicians' College on Amen Street. The second Lumlein Lecture was to be

given that year by a new man, and rumors had spread abroad about strange views to be propounded by the lecturer."

The silver tipped pointer and charts used by Harvey on that occasion are among the treasured possessions of the College today.

It is interesting to note that the mechanism of events of the heart's cycle and their analysis expounded on that April morning in 1616 has remained unchanged after more than 300 years of continued critical study.

The particular application of this new knowledge in the practice of medicine was evident then as it is now. Furthermore, the work of Harvey was a transition into the full current of essentially modern laboratory experimentation with extraordinary leaps forward into the medicine of the future.

Although the discovery of the circulation was announced in 1616, the publication of "Anatomical Disquisition of the Motion of the Heart and Blood Vessels in Animals," was not until twelve years later, in 1628.

The many commemorative exercises connected with the 300th anniversary of the publication of Harvey's work in 1928, directed the attention of the medical world to the tremendous importance of this physician's contribution toward the progress of our knowledge of the circulation.

The outcome of Harvey's demonstrations covers many of the most important advances made in recent medicine, and does but confirm his position as the founder of modern experimental physiology and one of the great leaders of European thought.

In the middle of the 17th Century medical science found a new pair of glasses in the discovery of the microscope by the Dutch clock maker, Antony VanLeeuwenhoek. This enabled Malpighi in 1660 to demonstrate the capillaries in the tissues of the lungs, and supplied the completing link in the circulation of the blood, that Harvey recognized but was unable to demonstrate by means available in his investigations.

A century goes by before another epochal contribution is made to the diagnosis of diseases of the heart, when in 1761 Leopold Auenbrugger of Vienna published his "Inventum Novum" containing the discovery of thoracic percussion. This fundamental contribution to physical diagnosis was largely ignored by the profession until one

Oration in Medicine presented at the 84th annual session of the Illinois State Medical Society, Springfield, May 15, 1934.



year before Auenbrugger's death, when in 1808 it was translated from the Latin under the title "Nouvelle Methode" by Jean Nicolas Corvisart of Paris, who gave to this discovery its rightful place in modern medicine. The torch which Auenbrugger kindled, Corvisart re-lit for all futurity.

The role of pathfinder in diagnosis of heart disease and the entire field of internal medicine, is accorded to that brilliant product of the early French school (René Theophile Hyacinthe), Laennec, a native of Brittany whose name was immortalized by the invention of the stethoscope in 1819, and the discovery of mediate auscultation.

Laennec was the favorite pupil of Bichat the anatomist, and Corvisart the cardiologist, who was also Napoleon's physician.

The opportunity came after he was appointed to the Necker hospital in Paris in 1816, where during the year he was consulted by a young woman suffering with heart disease. He was puzzled how to proceed with the examination, as the patient was too stout to permit of thumping the chest, and he could not place his ear to the chest because she was still young. In his dilemma he happened to recollect a fact in physics, and acting on this idea he rolled a quire of paper into a cylinder, applied one end to the region of the patient's heart and the other to his ear. Such was the first stethoscope, and for the first time a sick organ murmured its tale of woe into the ear of a great and sympathetic physician, and auscultation in physical diagnosis came into being.

We might dwell at length on this interesting personality, who labored under great difficulties, the victim of chronic pulmonary tuberculosis, yet it can well be said that Laennec with his stethoscope and the study of disease at the bedside and in the postmortem room, practically created clinical medicine as we know it today.

It had its immediate outcome in the brilliant clinicians in Ireland, England, Scotland and across the sea. In the Irish School appeared such leaders as Stokes, Cheyne, Adams, and Corrigan, each name associated with a new clinical observation of diagnostic importance in heart disease.

In 1827 Adams published the first description of heart-block, and in 1828 Stokes by further description established the Adams-Stokes syndrome.

Sir Dominic John Corrigan, M. D., a classmate of Stokes, 1825, University of Edinburgh, in 1832 described aortic insufficiency and originated the Corrigan pulse.

Dr. William Stokes of Dublin will always have a foremost place in Irish medicine. In 1825 he published an "Introduction to the Use of the Stethoscope." In 1827 the "Diagnosis and Treatment of Disease of the Chest," and in 1855 appeared his famous work "Treatise on Diseases of the Heart and Aorta," which will always have a fundamental place in our knowledge of these affections.

The Bichat-Laennec school had its influence on the English physicians of the period particularly on the "Four Great Men of Guys,"—Richard Bright, Thomas Hodgkin, Thomas Addison, James Parkinson, all well known by the diseases which bear their names.

Bright first correlated cardiac hypertrophy with renal disease, and Hodgkin as a contemporary of Corrigan shared in the first description of "Patency of the Aortic Valve."

The school of Louis which followed that of Laennec was the mecca of leading clinicians from across the sea, as the Jacksons, Bowditch, Oliver Wendell Holmes, George Shattuck, James C. Warren of Boston, Alonzo Clark, Austin Flint and Valentine Mott of New York, George M. Norris, Wm. Pepper, W. W. Gerhard, Alfred Stillé of Philadelphia, who in the words of Osler, became the academic progeny of this master, and transferred the principles of his numerical method "to carefully observe facts, carefully collate them, and carefully analyze them, as well as his bright ideals to future generations of American students."

The brilliant internist of the Vienna school, Dr. Joseph Skoda, published in 1839 the first edition of his treatise on percussion and auscultation, which passed through six editions. Skoda classified and clarified the different auscultatory sounds in the chest, and made many distinct contributions to the recognition of heart disease.

The publication by Bamberger of his treatise on heart disease in 1857 was a further distinct contribution of the Vienna school.

Graphic methods for demonstrating the physiology of the heart's action had their origin in the laboratory of Carl Ludwig, who is often referred to as the greatest teacher of physiology of all

time. Of him, Sir Lauder Brunton says "More than to anyone else, since the time of Harvey do we owe our present knowledge of the circulation."

The Dudgeon sphygmograph was the outgrowth of these studies. In the field of pulse tracing or graphic demonstration of the various pulse changes the greatest credit is due to that interesting and brilliant general practitioner Sir James Mackenzie. Probably no one has played a greater part in the advancement of cardiology in the past 35 years. His medical life forms an interesting story. Not specially brilliant as a student he did win a few prizes during his last year at the University of Edinburgh. After serving a year as resident in the Royal Infirmary he entered general practice at Burnley, a factory town in northern England. In the busy life of a general practitioner, his keen mind became centered on two definite objects—first, the understanding of the mechanism of symptoms, and second, the understanding of their prognostic significance. These were the simple resolutions and definite aims which led to the tremendous achievements and great success that came to Mackenzie in later years. He began to study the symptoms of every patient, and an accident directed his attention and special interest to diseases of the heart and circulation.

A woman patient in labor died suddenly of heart failure. This led him to studying the circulatory condition of all women before, during and after pregnancy. He noted particularly pulse irregularities as an abnormal sign and soon recognized two types—dangerous and not dangerous. He began to make pulse tracings by means of the old Dudgeon's sphygmograph of every patient and endeavored to interpret them. Soon he began the study of the venous pulse in the jugulars, which led to the development of the polygraph, by which he was able to make simultaneous tracings of the jugular venous pulse, the carotid pulse, and the apex beat of the heart. The final development was the ink polygraph that bears his name.

By many this discovery is regarded as the greatest contribution that Mackenzie has made to medicine.

Venous pulsations had been studied by others, by Potain in France and Riegel in Germany, but more from an academic viewpoint, while Mac-

kenzie applied his knowledge in a practical way.

He soon noted so-called "missed beats," which he explained as pre-ventricular contractions and named them extra systoles.

Among the dangerous forms of irregularities was a type in which the patient usually died in 5 or 6 years, and all seemed to be victims of heart failure frequently the result of rheumatic fever.

Then there came a patient with mitral stenosis and accompanying congestion of the liver. In auscultation he noted that the pre-systolic murmur was absent,—the thought came to him, that the "auricle had stopped beating." He called this paralysis of the auricle, which is now known as auricular fibrillation.

He noted further that digitalis slowed the fibrillation and relieved the decompensation.

His ideas were not readily accepted by leaders of the profession, and his early papers and writings were refused by leading medical journals. In 1902 he published his book, "Study of the Pulse," which gained great favor in Germany and America long before the giants of the English profession would even glance at it. After a visit to America and Europe, many leaders came to Burnley but not of his own country, so he decided to go to them. At the age of 54 years he moved to London, the first year of which was gloomy, but during the second year there was a miraculous change in the attitude of his professional colleagues. He was elected to Fellowship in the Royal College of Physicians of London.

He was referred to as a wizard which he resented because he regarded his ability to diagnose and prognosticate was due to knowledge of essential symptoms and warned—that no instrument, stethoscope, polygraph, or electrocardiograph, could replace mind and reasoning power of the doctor himself.

He never was enthusiastic about the electrocardiograph, because he thought that enough information could be obtained by other methods, yet the electrocardiograph helped to establish Mackenzie as a wizard, as it proved his tracings and interpretations to be correct.

Soon after the World War began he decided to move to St. Andrews, Scotland, to establish his Institute of Clinical Research. Here he expected to study the early stages of diseases and



discover the significance of such symptoms and ascertain the mechanisms of their production.

After his untimely death in January, 1925, his distinguished disciple, Sir Thomas Lewis, said the greatest of his work "lay in the fact that he so developed and simplified the method of approach as to bring it within the scope of the general practitioner."

About the middle of the last Century, 1856, Köllicker and Müller demonstrated in the experimental laboratory that when a frog's heart is contracted it produces an electric current. This was followed in 1887 by the discovery of A. D. Waller of the "demonstration in man of electromotive changes accompanying the heart's beat."

In 1903, Einthoven of Leyden introduced the string galvanometer to the scientific world. In 1906 the electrocardiograph was first introduced by Sir Thomas Lewis into hospital service in London, and thus clinical electrocardiography had its beginning.

This ushered in a new era in the diagnosis of heart disease, and particularly in the differentiation and interpretation of the arrhythmias, as well as the newer knowledge of coronary artery and myocardial disease.

The development of clinical sphygmomanometry had its beginning with the demonstration of the English rector Hales in 1731, "to determine the arterial blood pressure in horses by observing the height to which the blood columns ascended."

In 1828, Poiseuille determined the same by observing the heights to which the mercury column ascended.

Vierordt introduced his sphygmograph in 1885, Marey in 1876, VonBosch in 1887, and the Riva Rocci instrument began to be used in 1891.

This has gradually given way to the more comfortable wide air filled arm cuffs peculiar to the sphygmomanometers of the present day.

The measurement of arterial blood pressure has become a routine part of every physical examination and has revealed evident cardiac enlargement and heart failure not previously recognized.

The estimation of venous pressure is being more extensively applied in clinical examinations. It is regarded by Eyster and others as an index

of cardiac function with particular significance in impending or present cardiac incompetence.

After the discovery of the x-ray by Roentgen in 1895, this method of portraying the heart's silhouette became a part of the physical examination of the heart. Through the development of fluoroscopy, the orthodiagraph and the teleroentgenograph, the fairly accurate determination of the size of the heart in health and disease is possible.

The importance of determining hypertrophy or enlargement of the heart as related to potential myocardial disease is now generally recognized.

The gradual development of instruments of percussion has helped to confirm and evaluate clinical symptoms and to properly correlate various diagnostic phenomena. With advancing knowledge a historical sequence has likewise been maintained in the recognition of the various types of heart disease.

In 1557, Vesalius established the differential diagnosis between thoracic and abdominal aortic aneurism. Vieussens in 1685 contributed the first masterly delineation of aortic stenosis, and in 1715 of mitral stenosis. In 1768 Heberden wrote his classic description of angina pectoris with a report of twenty cases.

The introduction of digitalis by Withering in 1776 had a definite bearing upon diagnosis. In 1835 Graves described the circulatory signs in exophthalmic goiter. While Leonardo da Vinci first illustrated the auriculoventricular bundle in the 16th Century, Purkinje published a more definite description in 1839.

Haller in 1820 was the first to report the irritation to muscles as a stimulant to continuous flow of blood in the heart. The myogenic view of the heart's action was more fully confirmed by the experiments of Gaskell in 1882.

In 1908 Taware discovered the auriculoventricular node, and a year later the sino-auricular node or pacemaker was discovered by Keith and Flack.

The introduction of quinidin by Wenckebach in 1914 for the treatment of certain clinical arrhythmias was of further diagnostic significance.

Osler in his Goulstonian lectures on angina pectoria in 1910 essentially portrayed acute and chronic coronary disease as we understand it today.



An interesting history is connected with our present day knowledge of angina pectoris. First described and named by Heberden in 1768, who by the year 1801 had seen 100 cases. John Hunter's case was diagnosed by Jenner in 1793, who with Hunter was the first to associate angina pectoris with obstruction from hardening of the coronary arteries.

Allan Burns in 1809 expressed the view that the obstruction produced an anemia (anoxemia) of the cardiac muscle, such as obtains in the intermittent claudication of Bouley (1831) and Charcot (1858).

Amyl nitrite therapy was introduced by Lauder-Brunton in 1867. Allbutt and Vasquez made further important contributions to our knowledge of the mechanism of angina. Cardiac asthma was clearly differentiated from angina pectoris by Sir James Mackenzie in 1911.

Coronary thrombosis was first noted by Harvey, again by Jenner, described in detail by Obrastzow in 1910, but definitely defined as a clinical entity by the classic contribution of James B. Herrick in 1912.

Herrick with other American clinicians as Christian, Pardee, Willius, Paul White, Smith, Levine, Conner, Libman, Wearn, Wilson and Sutton, have added a new chapter to internal medicine.

These contributions in coronary thrombosis have likewise greatly advanced our knowledge of myocardial infarction and chronic degenerative heart disease.

In endeavoring to find relief for angina in its various forms, the surgeon has become interested in heart disease, as evidenced by the introduction of cervicothoracic sympathectomy by Jonnesco in 1916 and periarterial sympathectomy by Leriche in 1917. More recently total thyroidectomy in cases of intractable angina and decompensated hearts has been reported by Blumgart and Berlin with encouraging results.

With the wider recognition of heart disease, its incidence as to morbidity and mortality, is progressively increasing. From being the third in mortality ratio in 1900 it has increased to first place at the present time. This is in marked contrast to tuberculosis which was first on the list in 1900, but now has fallen to seventh place.

Several years ago Albert suggested the following reasons, as accounting at least in part for

the increase in the number of deaths from heart disease noted during the last thirty years.

1. The increase in the number of persons who live long enough to attain the "heart disease" age.

2. Decrease in the number of deaths from infectious diseases, especially tuberculosis.

3. Old age, which may account for a slightly increasing number of cases that may properly be regarded as resulting from a normal senescent process.

4. Increase in the proportion of the population "maimed" by scarlet fever, acute rheumatic fever, or other infectious diseases who survive such conditions as are likely to lead to heart disease.

Heart disease is, therefore, becoming an important public health problem. We have been accustomed to speak of the great increase in the mortality from heart disease, disregarding the age periods at which these increases have occurred. By analyzing the mortality rates such as those prepared by the American Heart Association, particularly according to age periods, it is seen that almost the entire increase in heart disease mortality has occurred at age 40 and over. The death rates up to age 30 are low. In charts showing percentage changes, the fact is noted that under 5 years of age there has been an actual decline of the heart disease rate in the last ten years of 34 per cent. At ages 5 to 9 there has been a decrease of 27 per cent. Even at ages 10-19 a 23.4 per cent. decline is apparent. These declines seem to reflect the intensified health work with infants, preschool and school children, which has been carried out in the last ten years.

This picture is somewhat upset by the increase at ages 30 to 39 and 40 to 49. In the latter decade there is an increase of 31 per cent. and at 50 to 59 there is a marked increase of 34 per cent.

The hope of lessening the incidence of heart disease in these later periods, is dependent on the recognition of the earliest manifestations of the same. The proper appreciation of this fact will permit the institution of such remedial measures as may modify and limit the tendency to more progressive and serious myocardial damage.

It is distinctly unfortunate that heart disease has become a rather highly specialized field of

medicine, and to some extent taken out of general practice.

The general practitioner by reason of his first contact with cardiac cases and his familiarity with the habits and history of the patient, is able to detect the earliest signs of disease. It is in this direction that preventive medicine will exercise one of its most important functions.

The historical development of our knowledge of the circulatory system and the diagnosis of heart disease, is of basic import and constitutes the most consequential episode in the general development of medicine.

The treatment of heart disorders is on a much better basis than formerly, and an increasing optimism has gone hand in hand with a better knowledge of the natural history of the disease.

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## EXPERIENCES IN THE TREATMENT OF HYPERTENSION WITH THE X-RAY

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Deaths due directly or indirectly to hypertension were said to number about 140,000 annually in the United States a decade ago. Fahr<sup>1</sup> reckoned this as twice the death rate from cancer. This ranks hypertension as one of the major causes of death. It is hoped that the importance of this problem justifies this report of progress in its treatment.

In the past thirty years numerous theories have been proposed as to the etiology of this syndrome. Among them at various times has appeared the idea that it might be due to hyperfunction of the adrenals, particularly the medulla. Recently DeCourcy<sup>2</sup> has published his results in the treatment of hypertension by the surgical removal of two thirds of each adrenal. Involvement of the pituitary in the etiology has been seriously considered, perhaps, only since Cushing<sup>3</sup> published his observations on pituitary basophilism. My own idea that *pituitary and adrenal hyperfunction or dysfunction* is responsible for the syndrome of essential hypertension was set forth in an article in the December, 1933, issue of the ILLINOIS MEDICAL JOURNAL.<sup>4</sup> Evidence to support this idea was gathered from the clinical and experimental fields and from the pathological laboratories and summarized in that article. Since its appearance Dr. J. D. Kirsh-

baum<sup>5</sup> has told me of six cases observed in Dr. Jaffe's laboratory at the Cook County Hospital. Three cases of uremia, two cases of hypertension and one of hypertension plus diabetes revealed an increase in the number of basophil cells in the anterior lobe of the hypophysis.

Cushing<sup>10</sup> has since reported the observation of a heavy infiltration of basophilic elements in the posterior lobe in six of nine pituitary bodies from fatal cases of eclampsia and in a number of glands from cases of essential or nephro-vascular hypertension. He concludes that the source of these hypertensive disorders lies in the posterior lobe of the pituitary body, that the extent of basophilic invasion from the pars intermedia is a measure of posterior lobe activity and that the excessive infiltration by these elements represents the histopathologic basis of eclampsia and essential hypertension in young persons and may possibly be related etiologically to the atherosclerosis of old age.

Hofbauer<sup>11</sup> also has suggested that the posterior lobe of the pituitary is at least partly responsible for eclampsia and its accompanying hypertension.

That article suggested that the x-ray might be used to correct the abnormal function of these two organs with a consequent relief of the hypertension and its accompanying symptoms. It was also suggested that the x-ray might be found useful in the treatment of diabetes by controlling the abnormal function of the pituitary and adrenals thought to be responsible for this condition. Our experience with this condition will be reported in a separate paper. This paper reports our experience in the treatment of hypertension.

The first treatment was administered in October, 1932, to a 31-year old patient in coma from a spontaneous subarachnoid hemorrhage which occurred four years after the discovery of his hypertension. More intensive work was not done until about one year later; i. e., October, 1933. We have had under observation 71 cases of hypertension, mostly of the essential type. Three cases have been reported by physicians in other cities as having responded favorably to this treatment. In addition we have seen nine cases of coexisting diabetes mellitus and hypertension, seven men and two women. Of these three were relieved of both conditions; that is, their gly-



cosuria disappeared and their blood sugar was reduced to normal and the blood pressures are respectively:

Before Treatment	After Treatment	Patient's Age	Sex
215/80	138/65	27	M
252/145	140/80	54	M
200/105	140/85	68	M

In two cases only the hypertension was relieved; the diabetes was not materially affected.

Blood Pressure Before Treatment	Blood Pressure After Treatment	Patient's Age	Patient's Sex
160/90	140/80	46	M
195/100	160/90	84	F

One case, a physician 55 years of age, had his diabetes markedly improved to the extent that he was sugar-free most of the time on a very indifferent diet and the subjective symptoms associated with the hypertension were relieved, but his blood pressure was not significantly reduced. One woman experienced a reduction in blood pressure of 70 on the systolic and 60 on the diastolic but her diabetes was not affected and her subjective symptoms were not greatly relieved. Six report themselves as feeling much better subjectively. Two cases had only one treatment.

Typical records of these cases are as follows:

Mr. A. D., aged 26 years, height 5' 1", had diabetes which required a restricted diet and ten units of insulin per day. His bilateral cataracts had been successfully operated on by Dr. Hiram J. Smith before he was referred to me (12/8/33). His blood pressure was then 215/80. He was able to discontinue the use of insulin after two x-ray treatments. His blood pressure, however, was quite resistant to treatment and did not return to normal until March 28, 1934. It was then 138/65. His vision, which was 10% of normal when treatment was started, increased to 50% of normal while he was under treatment. We do not know that the treatment had anything to do with this increase in vision.

Mr. J. H. H., aged 53 years, had diabetes and hypertension since a severe attack of mumps at the age of 45. He complained of severe headaches of almost daily occurrence, occasional diplopia, transient attacks of blindness, vertigo and loss of the power of concentration. He had frequent attacks of diurnal somnolence. Blood pressure was 252/145. He did not take insulin and spilled sugar much of the time. He had been incapacitated more than half the time for several years. His glycosuria disappeared rather promptly after treatment was instituted and has recurred but once since. His blood sugar has been normal for months. He has had in all 13 treatments. His blood pressure, July 13, 1934, was 140/80. He is free from all the complaints which he mentioned when he first came under observation. He has not missed a day's work since the treatment was begun.

The following is a brief resume of 71 cases of hypertension. Some of these were private patients; others were from the Out Patient Department of the Illinois Central Hospital. Several were from the medical service of Dr. LeRoy H. Sloan of the Illinois Central Hospital and a few were contributed by other members of that hospital staff, to all of whom I am indebted for the privilege of including them in this report. Of these, 42 were between the ages of 40 and 60. The others ranged from 19 to 84 years of age. A good many of these patients had no subjective complaints, their hypertension having been discovered in the course of some routine examination. Thirty-two complained of headache, ten of vertigo, fourteen of precordial distress. As stated elsewhere a good many patients mentioned this symptom only when they commented on its disappearance after treatment. Eight listed general weakness and tiredness; seven noted irritability and six complained of lack of endurance and somnolence. Of these 71 cases 54 are definitely improved both as to their subjective complaints and reduction in blood pressure. Seventeen are listed as unimproved. Nine of these have not had sufficient treatment to give the matter a fair trial. Two responded favorably to a few treatments and then discontinued them on their own responsibility. One of these has since died from coronary thrombosis. A post mortem examination was refused. Of the others two are dead. One had cerebrospinal lues and died of an intracranial hemorrhage. He had numerous treatments but without any effect either on his symptoms or his blood pressure readings. A post mortem could not be obtained. The other had a carcinoma of the stomach and should never have received treatment in spite of his hypertension, large sella and choked discs.

The following are a few representative case reports:

Mr. F. H., aged 33 years. His hypertension was discovered at the age of 29. His blood pressure was then 200/140. Headaches were frequent and severe. He was somnolent and easily tired out. September 27, 1932, he had a subarachnoid hemorrhage at which time his blood pressure was 218/144. He was unconscious for a week. Cushing's report on basophilism appeared about this time and so we gave him two small doses of x-ray to the pituitary. He gradually recovered without residual symptoms of the hemorrhage and returned to teaching January 1, 1933. His blood pressure remained below 170/120 for some months, but when the



use of an insulin-free extract of the pancreas was discontinued it slowly rose to 180/130 when he was given further x-ray treatment. His blood pressure promptly dropped to 145/110. His headaches and somnolence disappeared and he reported himself as feeling better than he had for many years. After a number of treatments with a machine not designed for so-called deep x-ray therapy, his blood pressure again rose to 190/140. He was then given heavier doses of the x-ray with a reduction of the blood pressure to 160/115 with a coincident improvement in his sense of well-being. His blood pressure, July 6, 1934, was 158/108. This man has had more treatment than any other patient under our observation. Treatments have been given at various times since September, 1932. He has not received any for some months. His blood pressure has not risen since the last treatment. After some months without treatment there is a return of some subjective symptoms, chiefly fatigability and somnolence. These promptly disappear after one treatment.

Miss M., aged 33 years. Her hypertension was discovered in January, 1933. February 15 the blood pressure was 154/96. In a few months it rose to 190/110. She complained of severe headaches just before the menstrual periods and was tired much of the time. She menstruated too frequently and profusely. She had nine x-ray treatments from October 16, 1933 to April 18, 1934. Her blood pressure was 146/96 on May 9, 1934. It has been about 145/95 most of the time since January 1, 1934. Her headaches, menstrual disorders and fatigability have been corrected.

Mrs. H. S., aged 48 years, had had frequent headaches for seven or eight years. If she leaned back or rocked as in a chair there was a feeling as if a curtain were drawn over her eyes. She had pulmonary tuberculosis two years ago. Blood pressure 252/140. Her blood pressure came down rather promptly to 165/96. Following an emotional strain it went up to 234/126 and came down rather slowly after further treatment. She has had in all 13 treatments. Her blood pressure now is 145/80. She has very little headache and has much more endurance than formerly.

Mrs. C., aged 46 years, complained of nervousness, irritability, insomnia, and of being constantly tired. She was heart conscious much of the time. Blood pressure 170/100. Pulse 100. B. M. R. plus 48%. This was not affected by Lugol's solution. After one treatment on February 6, 1934, her blood pressure dropped to 140/85. She said she was less nervous, less tired and slept better. Subsequently the blood pressure rose to 150/90 and there was some slight increase in nervousness. Another treatment was given on March 8 after which the blood pressure dropped to 134/92. She had another treatment April 12 when the blood pressure was found to be 155/95. All of her presenting symptoms were improved. Following this treatment her blood pressure dropped to 145/90. Her B. M. R. was minus 6%.

Mr. L., aged 50 years. Blood pressure was 160 in 1916, 180-200 in 1927 and 240/130 on December 5, 1933. He complained of severe headaches, weakness, shortness of breath, heart consciousness, precordial dis-

tress and attacks of somnolence. He has had eight treatments. His headaches, somnolence and weakness disappeared after the first three treatments. He claims that he can climb five flights of stairs with less shortness of breath than he could previously climb two. April 30, 1934, his blood pressure was 160/95. It has remained about that figure ever since.

Mr. O., aged 41 years, had hypertension for four years, daily headaches on arising, weakness in his legs, cold hands and feet and was easily upset and tired out. Blood pressure April 3, 1934, was 190/125. His glucose tolerance test showed a decline from a fasting level of 101 to 50.4 three hours after taking glucose. He had four treatments up to June 2, 1934, when his blood pressure was 150/98. He reports the relief of most of his subjective symptoms.

Mr. J. K., aged 69 years, was admitted to the hospital March 26, 1934, with a diagnosis of arteriosclerosis, hypertension and hypertensive heart disease. His blood pressure was 190/150. He complained of frontal headaches for two years and of dyspnea on exertion for one year. There was no edema and he complained of no precordial distress. He was a large, heavy man whose physical examination bore out the diagnosis. The urine showed a trace of albumin but no casts. The blood count was essentially negative. The glucose tolerance showed a fasting blood sugar of 88 mg. One hour after 100 grams of glucose it was 190 and at the end of three hours it had declined to 108. The urine was negative throughout the test. His headaches, which were very severe and resistant to medication, were markedly relieved by one x-ray treatment and disappeared entirely before he left the hospital. His blood pressure came down to 145/90. He was discharged from the hospital without headache, with less dyspnea and generally in a very good condition. The x-ray showed his sella to be on the upper limit of normal for size. It was both wide and deep. He was six feet in height, indicating a pituitary that had been abundantly active during his growing years.

#### UNIMPROVED CASES

Mrs. E. C., aged 63 years, was an old nephritic to whom this treatment was administered by the doctor to satisfy the family. There was no improvement in the blood pressure and no relief of symptoms.

Mr. S. H., a pensioned laborer whom Dr. Olson saw September 21, 1933, had a pulse of 135 and a blood pressure of 224/148. He had a stroke April 3, 1933. He was given two treatments on December 13 and 20, 1933, following which his pressure was 235/120. While he states that he has been feeling well, no subsequent treatments were administered.

Mrs. N. came under observation in 1930 at the age of 39 complaining of hypertension since the birth of her last baby nine months before, obesity, severe headaches occurring near the menstrual period, at which time a drop in blood pressure was noted, a stone in her right kidney, shortness of breath and an old history of peptic ulcer. Blood pressure 175/100. Weight 218½ pounds. Later the blood pressure was 200/110.

It was evidently of the paroxysmal type as it was later down as low as 130/85. X-ray treatments were begun in December, 1933. Her blood pressure continued to fluctuate from 140/80 up to 170/110. She continued to have frequent severe headaches. We believe the failure is due to the fact that she does not get sufficient rays nor treatment at sufficiently frequent intervals.

Mrs. D. E. came under observation in 1931 at the age of 52. She complained of slowing down mentally and physically, gain of twenty pounds in the past year and rheumatism of her knees. Her B. M. R. was recorded as minus 20%. Weight 204 pounds. Blood pressure 165/108. Her blood pressure continued to rise and was 178/100 in January, 1933. She had three x-ray treatments last December. January 12, 1934, her blood pressure was 155/95 and on April 13, 160/85. While she claimed to feel much better, we feel that her hypertension was not proportionally reduced because she did not have sufficient of the rays.

Two additional cases were reported by a physician in a western city.<sup>6</sup> He is himself a victim of hypertension and writes that he is significantly improved in all subjective symptoms while his blood pressure is reduced 50 points on the systolic and 20 on the diastolic side. The other case is a maid in this doctor's family who has been the victim of hypertension for some years. He states that she has experienced a material reduction in blood pressure with relief of her subjective symptoms. A prominent roentgenologist in Philadelphia<sup>7</sup> writes of his case: "I have treated her twice during the past two weeks, apparently with very definite benefit. Yet, I am not sure that this may be in part psychical, but even if it be only psychical it would be worth while."

#### DISCUSSION

A frequent, if not a characteristic, finding of essential hypertension is a marked difference between the pressures in the two arms. One of the early results of treatment is an equalization of these pressures. After a few treatments the blood pressure becomes extremely labile. To illustrate: Frequently when a patient's blood pressure is first taken it may register as much as 200. If it is taken a second or third time a minute or two later it may register as much as 30 points lower. Undoubtedly the difference in pressures recorded by different observers on the same patient is due to the fact that one records the pressure hurriedly and the other takes a number of readings.

Usually three or four treatments are given at intervals of one week. Treatment is then in-

terrupted for three to four weeks in order to assure ourselves that we do no damage to the skin or hair. Younger patients or those who have had hypertension for a shorter period of time may experience a return to normal figures after one or two treatments. In such cases nothing further is done unless the blood pressure rises again to an abnormal figure. In short, we aim to give the smallest amount possible to relieve the patient. Approximately 100 R units are given to each side of the pituitary and the adrenals at each treatment. In most cases the pituitary and the adrenals are rayed at the same time. However, one girl received treatment only to the pituitary with rather satisfactory results. One man we believe would have been better off if only his adrenals had been rayed at the second sitting. It is my opinion that better results have been obtained in those cases that received treatment with a deep therapy apparatus. The roentgenologists do not agree with this. We use from 120 to 150 K.V. One roentgenologist<sup>7</sup> writes: "I have given through the pituitary region a 10 per cent. surface dose of high voltage x-rays on the machine that I use for this region, that involves 200 K.V., 3 Ma. 5 minutes, in a field 6x6 cm., at a distance of 40 cm., and with 0.5 copper filtration. Over the suprarenal region I also gave a 10 per cent. surface dose, on the machine used for this area, with 200 K.V., 4 Ma. 8 minutes, in a field 12x16 cm. crosswise, 60 cm. distance, with 0.5 copper plus 5 cm. of felt."

The pituitary and adrenals are so closely inter-related that it is usually impossible to tell which is the primary and chief offender. Frequently the sella turcica is quite large but considered by the roentgenologist to be within normal limits. An excess of calcium is often present about either the anterior or, more frequently, the posterior clinoid processes. There is sometimes a smudge of this material within the sella itself. We do not know the significance of these observations, but are convinced that patients exhibiting such a sella offer a better prognosis as to treatment than do patients exhibiting a small or entirely normal appearing sella. It may be that these large sellae occur in cases where the pituitary is the primary offender. Treatment to the pituitary alone might settle this point. I have just stated that it has been done in one case with very good results. On the other hand, the small sella might



point to the adrenals as the chief offender. As a matter of fact there is some clinical evidence of this and work is now being undertaken to determine whether this is so. A physician in a western state,<sup>6</sup> himself a victim of hypertension, had his own adrenals rayed with much heavier doses than we use. He writes that he experienced considerable symptomatic relief and a notable reduction in blood pressure from two treatments.

Most of these cases have been ambulatory. They are worked up at the office and if no contra-indication is found are sent to the laboratory for treatment. They return for observation one week later. By that time most patients show a considerable reduction after the first treatment. Subsequently there is a rise in blood pressure almost but not quite to the original level. This declines rather slowly and not at a constant rate under subsequent treatment. A few cases have shown a considerable increase in blood pressure after treatment. One physician, for example, started with a blood pressure of 160/120 which increased after each of three treatments until it stood at 200/140. The fourth treatment, applied to the adrenals only, was followed by a rapid fall in blood pressure to 140/90. This fall in pressure was accompanied by some unpleasant symptoms—weakness, shortness of breath, sweating, drowsiness. He has had no further treatment and his blood pressure remains at about 140/100. He states that he feels very much better than before treatment was started in that he is free from precordial distress, is less irritable, is able to work more easily and has more physical endurance. The arteries in his lower limbs were sclerotic to the extent that they were plainly visible in x-ray films up to his groin. His father was a victim of Buerger's disease and he considers himself in the early stages of it. A few patients have shown a temporary rise lasting about 72 hours after the first treatment.

Some symptomatic changes occur quite promptly. For example, one physician who had been subject to vertigo for five years and was quite dizzy when he got on the table for his first treatment, stated that his vertigo disappeared in the course of that treatment and did not return for three weeks when he was in quite a serious accident. A good many patients say that they feel remarkably clear-headed and able to work

more easily and to better advantage shortly after treatment is started. Another interesting change is an increase in physical endurance.

At least two patients past 50 years of age have stated that there was relief from their sexual impotence. Whether this is a temporary or a permanent affair remains to be seen. Dr. Culpepper<sup>8</sup> tells of a case in which definite paranoid tendencies associated with hypertension were relieved coincident with the reduction of the hypertension by the x-ray.

The fact that the blood pressure frequently falls so promptly and markedly after small doses of the x-ray raises the question whether the organism is at first very sensitive to the ray and later acquires some tolerance for it so that the fall following subsequent treatments is less rapid.

Mr. R. H., 50 years of age, weighing 238 pounds, had a blood pressure of 190/150. After the first three treatments his blood pressure dropped to 160/105. After this it rose to 230/134 and has declined under subsequent treatments only to 178/112. It is likely that the x-ray exerts some regulatory influence on these organs as the blood pressure does not fall when it is at or near normal levels. This is noted particularly in the diabetics who experience no reduction in their blood pressure.

Before treatment is instituted the patient should be given the benefit of a careful physical examination, a urine analysis and a determination of the specific gravity at 2-hour intervals. A glucose tolerance test should be done and if convenient the basal metabolic rate should be determined.

The glucose tolerance test furnishes some idea as to the likelihood of the patient's responding favorably to treatment. It was O'Hare's<sup>9</sup> idea that this test served to separate the nephritic from the non-nephritic type of hypertension. Those exhibiting a very high sugar curve offer a more favorable prognosis than those who do not. We have done a glucose tolerance test on 18 patients, 11 of whom had a rise of blood sugar to 190 or more. In a number the blood sugar rose to 250. Most of these exhibited a high renal threshold so that when the blood sugar rose to 190 or more there was no glycosuria. We have seen several cases that had an inverted type of sugar curve. The blood sugar rose slightly or not at all after the ingestion of glucose and at the end of three hours was much lower than in the fasting state. The significance of such a curve we do not know. While we have gotten very good



results in these cases, they are more difficult to handle and need to be watched more closely.

**Contraindications.** Severe generalized arteriosclerosis should probably be regarded as a relative contraindication. While we have given the treatment to one woman aged 84 whose hypertension was corrected and a man aged 79 who experienced a fall of 70 points in blood pressure and relief of his precordial distress and anginal attacks, yet in most instances severe arteriosclerosis should probably be sufficient to rule out this treatment. Nephritis should at this time be regarded as an absolute contraindication. While in the doses we use, the ray undoubtedly does not damage the kidney, it is likely that nephritis and a coexisting hypertension are in some way dependent upon each other so that a marked reduction in pressure would probably not be to the patient's advantage. Myocarditis and cardiac decompensation probably do not contraindicate this treatment, but should cause one to approach the case with more than the usual degree of caution. Angina pectoris is not a contraindication. We have treated five cases who were said to have had a coronary lesion. All report themselves as feeling better. In four the blood pressure is down to nearly normal and they seem to have much more endurance. The fifth, a physician, has had only a few treatments. He reports considerable subjective improvement and his blood pressure is notably reduced but it is too soon to know what the final result will be.

We have had no bad results—no burns, no loss of hair, no pituitary or adrenal insufficiency. A few patients have vomited after receiving the x-ray treatment. This should be a warning and cause one to proceed with great caution; it does not necessarily mean that treatment should be permanently discontinued.

The following shows a course of treatment as administered to the patient whose case history is given briefly:

Date	Area	KVM	Port	Fil.	STD	Ma.	T	MAM	RU
2-1-34	Adrenals	120	15x15	2 al.	50 cm.	5	10	50	133
2-1-34	L. side pit.	120	10x10	2 al.	50 cm.	5	8	40	106.4
2-1-34	R. side pit.	120	10x10	2 al.	50 cm.	5	8	40	106.4
2-8-34	Adrenals	120	15x15	2 al.	50 cm.	5	10	50	133
2-8-34	L. side pit.	120	10x10	2 al.	50 cm.	5	8	40	106.4
2-8-34	R. side pit.	120	10x10	2 al.	50 cm.	5	8	40	106.4
2-15-34	L. side pit.	120	10x10	2 al.	50 cm.	5	8	40	106.4
2-15-34	R. side pit.	120	10x10	2 al.	50 cm.	5	8	40	106.4
2-21-34	Adrenals	120	15x15	2 al.	50 cm.	5	10	50	133
2-21-34	L. side pit.	120	10x10	2 al.	50 cm.	5	8	40	106.4
2-21-34	R. side pit.	120	10x10	2 al.	50 cm.	5	8	40	106.4

### Case History

He is a man 52 years of age, six feet in height, weighing 216 pounds. He came under observation January 22 with a blood pressure of 230/130. There were no pathological findings in his urine and his blood chemistry was normal. He complained of headaches, chiefly in the occiput, weakness of his legs and frequency of urination. The significant physical findings were the high blood pressure, a pitting edema extending almost to his knees, contracted pupils and very sluggish tendon reflexes. He had been told that his trouble was due to cerebrospinal lues and in spite of the negative blood and spinal fluid Wassermann, a healthy family and no history of syphilis, he had been under intensive antiluetic treatment for one year.

After the first x-ray treatment his blood pressure dropped to 160/90 and his headache, which had been almost constant for several years, disappeared within three days. Much of his weakness disappeared and there was considerable lessening of his edema. Subsequently there was a rise in blood pressure to 200/125. Under subsequent treatments his blood pressure has dropped to 178/92. After a severe mental strain of one month his blood pressure was 195/100 but there was no return of his headache and other symptoms.

In a few instances we have used 150 kilovolts with  $\frac{1}{4}$  mm. of copper and 1 mm. of aluminum. It is my impression that some cases respond better to this than to the lighter voltage.

The symptomatic relief of most patients is very

Sex	Age	Blood Pressure Before	No. of Treatments	Blood Pressure Afterward	Remarks
M	41	190/125	7	150/98	Headache relieved. Strength and endurance improved.
M	53	210/120	5	140/90	Marked improvement. Returned to duty after being laid off 1 yr. because of high blood pressure.
M	58	210/150	9	158/120	Headache and vertigo relieved; vision improved.
M	69	190/150	1	145/90	Headache and dyspnea relieved.
M	52	230/130	12	178/92	Headache and precordial distress relieved; more strength and endurance.
F	53	190/110	4	140/80	Headache and choking spells relieved.
F	55	230/130	5	165/68	Precordial distress, headache and dyspnea relieved.

striking. They frequently state that there is shortly relief of headache and dizziness, disappearance of precordial distress and an increase in their physical strength and endurance. The following are typical cases:

The roentgenologist should not be saddled with the entire responsibility for the treatment and supervision of these patients. They should be seen regularly by a competent doctor who should watch them much more closely than he does the ordinary case of hypertension. He should see them at least once a week and note the blood pressure, the pulse rate, the condition of the urine and the general condition of the patient. It should be remembered that the x-ray is a very powerful agency capable of doing a great deal of damage. If this treatment is attempted by lay technicians without competent medical supervision undoubtedly some patients will be hurt. However, the symptomatic relief afforded by it and the reduction in blood pressure accompanying it in the majority of cases seems sufficient to warrant calling it to the attention of the profession for further study.

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#### PROGNOSIS IN HEART DISEASE

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The traditional uncertainty of life in the presence of organic heart disease has always surrounded the cardiopathic subject with an aura of tragic potentiae in the eyes of his physician. The paradox of this situation exists in the fact

that while some of the time honored signs of heart disease still held in unwarranted awe, are now known to be comparatively incapable of producing sudden death or even serious functional incapacity, on the other hand many extremely treacherous conditions may remain unrecognized and unheeded in their clinical incipency. Adequate clarification of this situation may be sought through the following channels:

1. Careful etiologic classification of every case of heart disease.
2. Application of accumulated knowledge concerning the morbid tendency of each particular type.
3. Proper appreciation of the early subjective expression of myocardial and coronary disease.
4. Application of certain objective criteria which designate the truly pathologic heart.
5. Recognition of certain symptoms and signs known to be of grave prognostic significance.
6. Consideration of the constitutional type, heredity and habits of living in the individual case.

This discussion will deal particularly with the relationship of etiology and of early clinical recognition to the prognosis of heart disease. It is in the early stages of cardiac incapacity that prompt readjustment of living and effective management offer the greatest possibilities of clinical response and life expectancy. Life expectancy is largely dependent upon the condition of the myocardium, and after middle life the degree to which its nutritional integrity is affected by coronary sclerosis.

Heart disease in the earlier decades of life, following as it does in the wake of rheumatic disease, promises to be in greater abeyance as hygienic conditions in crowded centers improve; as greater understanding of infant nutrition and child hygiene develops through health education; and finally as the problem of the relationship of acute and chronic upper respiratory infections to the rheumatic syndrome approach solution.

That we shall not have fulfilled our entire measure of duty by prophylactic endeavors at the threshold of life is quite apparent. We must continue to give our unfaltering attention to the study of cardio-vascular disease during and after middle age, where especially are the ravages of cardiovascular deterioration so marked and widespread. The captain of this legion of cardiovascular failure is unquestionably hyper-



tension with its host of cardiac, vascular and renal complications and sequelae.

Richard Cabot<sup>1</sup> in his survey of over 1900 cardiac cases coming to autopsy from the medical service of the Massachusetts General Hospital, found that 77 per cent. of them were due to the effect of hypertensive disease. Well over half of all hypertensive subjects die cardiac deaths, the remainder terminating by cerebral hemorrhage or uremia. Naturally pneumonia, diabetes, malignancy, and other intercurrent diseases take their usual toll.

Full consideration of the problem of cardiovascular disease must include not only the morbid states of the heart and great vessels but of the entire vascular tree as well.

Certain morbid vascular conditions form the background for cardiac disease, such as the hypertrophied heart evolving upon the long continued strain of vascular hypertension. Coronary disease in both its occlusive and anginal expressions is a cardiac manifestation of general vascular sclerosis.

*The Etiology of Heart Disease:* Development of the etiologic concept of heart disease is probably one of the most significant trends of present day cardiology. In a previous paper\* read before the Missouri State Medical Association in May, 1929, we called attention to the importance of this consideration as essential to comprehensive diagnosis, prognosis and treatment of heart disease. A simple outline was presented classifying organic heart disease etiologically as follows: 1. Congenital; 2. Rheumatic carditis; 3. Bacterial endocarditis; 4. Thyrotoxic heart disease; 5. Syphilitic cardiovascular disease; 6. Hypertensive cardiovascular disease; 7. Degenerative cardiac states associated with general systemic conditions, such as arteriosclerosis producing angina and coronary occlusion; infectious diseases or foci of infection producing toxic myocardial changes; and finally cardiopathic states associated with emphysema diabetes, nephritis, anemia, etc.

The importance of striving to arrive at a definite etiologic diagnosis was stressed, with discussion of the factors helpful in determining it. Avoidance of such indefinite and etiologically unqualified terms as "mitral regurgitation" or "myocarditis," should tend to crystallize our concept of heart disease. It would seem desir-

able to qualify such diagnoses from an etiologic standpoint, which can frequently be done by carefully analyzing the history of past diseases, and making a comprehensive physical examination, so as to obtain evidence of any collateral systemic disease known to have cardiovascular complications. Laboratory, electrocardiographic and roentgen ray studies naturally contribute their part to a complete etiologic survey.

If we are to recognize heart disease in its earliest manifestations, when the prognosis is best, we must be alertly familiar with its clinical causes. Complete cardiac diagnosis should in every case be qualified by an etiologic diagnosis as nearly as it is possible to designate. The present day tendency is to lay more stress upon etiology, functional capacity and subjective symptomatology and less upon the physical features of certain murmurs, arrhythmias, etc., except where they are of etiologic or prognostic significance. We are in accordance with Willius<sup>2</sup> in considering the prognosis of heart disease dependant principally upon the etiologic factor concerned.

#### SPECIFIC INFLUENCE OF ETIOLOGY ON PROGNOSIS

*Congenital Heart Disease:* Congenital heart disease is comparatively rare after early infancy where it shows its highest mortality. Incomplete or absent septa, pulmonary stenosis, atresia of the aorta and right ventricle, are the most frequent autopsy findings and are usually difficult to diagnose with accuracy during life. When they do not cause early cardiac death, the cases frequently terminate in childhood or early youth, form some intercurrent malady. In older children, symptoms of readily produced or constant cyanosis, retardation of growth and physical signs of circulatory distress are the most important factors influencing prognosis, which may be rendered more favorable by early diagnosis with institution of appropriate measures to safeguard the child, such as regulation of effort, careful nutritional control and avoidance of fatigue and acute respiratory infections to which they are usually susceptible. If a child with a developmental cardiac abnormality survives the first seven or eight years of life, he has a prognosis equivalent to or even better than a child with a healed rheumatic endocarditis, showing a similar response to effort. They stand equal chances of superimposed bacterial endocarditis later in life.



We must differentiate between actual symptomatic congenital disease and the asymptomatic type in which the lesion is merely an anatomic landmark, with an entirely adequate functional capacity.

*Rheumatic Carditis:* The immediate prognosis of acute rheumatic carditis is favorable, the mortality and liability to permanent cardiac damage diminishing with each decade, being highest in early childhood. Recurrent attacks increase the probability of permanent damage. As the myocardial involvement usually resolves rather completely, the ultimate prognosis of a healed rheumatic valvular lesion is usually determined by the degree of valvular stenosis produced. The compensation of such a damaged heart is roughly indicated by its capacity to meet the ordinary demands of everyday life. Ultimately congestive failure usually makes its appearance. The prognosis of the earlier decompensatory episodes is better than decompensation occurring in any other type of heart failure, except that of the surgically treated thyrotoxic type. Later in life the factor of superimposed myocardial and coronary changes renders the restoral of functional capacity more uncertain.

Cabot<sup>1</sup> found that less than half his cases of healed rheumatic endocarditis died of congestive heart failure per se. Mitral disease is compatible with long life and if the patient gets beyond the second decade, his valvular lesion is often not the cause of death. Intercurrent infection, trauma and other incidental diseases are just as likely to cause death ultimately as is the heart condition itself. Furthermore, superimposed cardiac conditions such as hypertensive or coronary disease sometimes terminate the picture. The possibility of superimposed bacterial endocarditis must always qualify too optimistic a prognosis on even a slight, well compensated mitral stenosis. The experienced clinician is careful to eliminate all foci of infection, as well as undue sources of fatigue or exposure.

Thrombosis in the auricular appendages occurs in about a quarter of the decompensated fibrillating cases. Parts of this thrombus are sometimes broken loose and form emboli in the peripheral circulation such as the leg, brain, or spleen. Pulmonary infarctions from right atrial thrombosis are frequently encountered.

Another lesion sometimes occurring with rheumatic history, found principally in males and

manifesting itself later in life, is aortic stenosis. This is to be considered rheumatic where syphilitic cardiovascular disease can be definitely ruled out. While there is considerable evidence that rheumatic fever is at least closely associated with streptococcal infection, no single specific strain has as yet been proven to be the etiological agent. The large volume of evidence suggests that the disease is one of hypersensitiveness to the products of streptococci.

*Bacterial Endocarditis:* Actual bacterial endocarditis presents a very different prognosis than rheumatic endocarditis, upon which it is frequently superimposed. The subacute type is usually caused by the streptococcus viridans but occasionally by the influenza bacillus and usually terminates fatally in from three to eight months. Bacterial endocarditis may occur as a terminal factor in a fatal streptococcal, staphylococcal, pneumococcal or gonococcal septicemia.

*The Problem of the Systolic Murmur:* Systolic apical murmurs have no prognostic significance except that of the type of heart disease with which they are associated. When not caused by bacterial endocarditis or rheumatism, in which latter case they are always accompanied by some degree of stenosis, they may be associated with myocardial or coronary disease. If these etiological factors can be ruled out and no other evidence of organic heart disease, such as enlargement, thrills and second sound accentuations be present, we may term the murmur functional. Normal individuals often have faint systolic murmurs, and even moderately loud functional types may be produced by cardiac over-activity associated with hyperthyroidism, fever and anemia.

The systolic murmur over the aortic area, more frequently encountered in those past middle life, when not due to aortic stenosis, is usually associated with a dilated, inelastic atherosclerotic proximal aorta. There is an interesting problem presented by this phenomenon, that may be of prognostic significance in the possible association of this murmur with coronary sclerosis. Scott<sup>3</sup> reports an interesting anatomical finding called to his attention by Professor Erdheim, who pointed out that the first few centimeters of the aorta are singularly free of atheromatous changes in individuals who attain seventy years or more, although the remainder of the aorta may be quite atheromatous. On the other hand,

marked involvement of the first three or four centimeters appeared to be incompatible with the attainment of this age. Exceptions to this rule were very rare. In searching for some explanation of this fact, one is reminded of the evidence indicating that the first part of the aorta is nourished by the coronaries, so that it appears possible for some relationship to exist between coronary disease and sclerosis of the proximal portion of the aorta, which is involved in the production of this systolic aortic murmur. Hence its potential prognostic significance. We have been carefully recording the presence and intensity of this type of murmur for the past year, but the significance of such data will naturally take some years to realize.

*The Thyrotoxic Heart:* The occurrence of thyrotoxic heart disease will naturally be increased in the districts where endemic goiter is especially prevalent. The patient, often middle aged or even elderly, may have been going along for years with a small, perhaps unnoticed adenoma with no profound symptoms except nervousness and palpitation, with mild breathlessness on effort, until its ultimate effect upon the myocardium has been such as to produce congestive failure. These cases are frequently diagnosed as "myocarditis" and treated with rest and digitalis, with little or no benefit.

Clinically these cases present the picture of an overly stimulated, disproportionately rapid and usually irregular heart, often not greatly increased in size. Subjective and objective evidence of hyperthyroidism, such as increasing heat sensitiveness, tremulous warm moist hands, good appetite with loss of weight and a nodule in the thyroid can usually be elicited by careful search. Bedside evidence is all important since metabolism readings may be greatly affected by the presence of dyspnea. It is astonishing what profound thyrotoxic effect can be wrought by a practically unnoticeable nodule of the gland. There is nearly always auricular fibrillation present in advanced thyrotoxic cases. In fact where mitral stenosis can be ruled out with reasonable assurance (sometimes difficult in fibrillation), the next etiologic probability is hyperthyroidism. Some of the most gratifying results in clinical medicine are obtained from combined medical and surgical treatment of even advanced cases of thyrotoxic heart disease. Blumgart, Levine and Berlin<sup>4</sup> have recently reported relief

of congestive heart failure and also angina pectoris by total removal of normal thyroids. The explanation lies in reduction of the metabolic rate, thus lightening the cardiac load.

*Cardio-Vascular Syphilis:* Practically all the lesions of cardio-vascular syphilis begin in the aorta and are manifest as aneurysmal enlargement, aortic regurgitation or angina pectoris, alone or in combination. Pathologic evidence suggest that the disease probably remains latent and harmless for many years after the primary syphilitic infection and that in many, even perhaps most cases, it is merely a pathologic landmark in the post mortem examination. Actual clinical manifestations of cardiovascular lues such as pressure symptoms, decompensation, severe angina, etc., usually cause death within two years of the first onset of actual symptoms. Congestive failure usually occurs within a few months after the onset of frank dyspnea.

Aortic regurgitation without stenosis, unaccompanied by mitral disease or rheumatic history and in the absence of bacterial endocarditis, in a man under forty-five is usually syphilitic. The disease attacks no valve but the aortic, where it produces a regurgitation in one-half the cases.

When syphilitic aortitis narrows the coronary orifices in its progress toward the heart, angina pectoris is a common feature of the disease. However, pathologic evidence of syphilitic cardiovascular changes are found in less than ten per cent. of all angina cases coming to autopsy. Angina pectoris before forty is somewhat suspicious of syphilitic aortitis. As the Wassermann is positive in about eighty per cent. we must rely upon clinical diagnosis in the remaining twenty.

When the syphilitic process invades the aorta higher up aneurysmal dilatation often results. Diffuse generalized dilatation of the aorta is usually produced by hypertensive disease and not by syphilis. The problem of prevention of the serious results of cardiovascular syphilis resolves itself into early diagnosis and adequate treatment of its early stages, before the heart and vessels have become seriously impaired.

*Hypertensive Heart Disease:* The most frequently encountered type of decompensated heart disease in adults is that associated with long standing hypertensive disease. Because it occurs so frequently and has such constant clin-



ical and pathological characteristics, we feel that it warrants a definite group in the classification of heart disease, even though arterio-sclerotic coronary involvement is so constantly associated.

Approximately 140,000 persons in the United States, on a conservative estimate, die each year from the consequence of high blood pressure. Over half of these deaths result from cardiac failure. Bell and Clawson<sup>5</sup> found myocardial insufficiency and coronary disease responsible for 60 per cent. of the deaths in 420 cases of primary vascular hypertension. In a series of 100 autopsied hypertensive cases at Cleveland City Hospital Scott<sup>3</sup> found myocardial failure to have been the cause of death in 68, cerebral accident in 22 and renal insufficiency in but 10.

Kieth, Wagner and Kernohan<sup>6</sup> stressed the characteristic histologic picture in so-called malignant hypertension as showing a diffuse generalized hypertrophy of the arterioles and described the picture as one of simultaneous rapid functional failure of the kidney, heart and brain, because of the widespread vascular changes occurring in these organs. This is the type of hypertensive disease represented in the small percentage terminated by uremia. It is apt to come on earlier in life than the more benign type and is characterized by rapidly developing renal, cardiac and cerebral manifestations, very frequent renal failure, marked neuroretinitis and usually a very high diastolic pressure. This disease like diabetes seems especially vicious in the earlier decades of life.

In the average benign hypertensive case, symptoms of cardiac embarrassment do not begin to develop for 12 to 15 years or more after the onset of definitely established hypertension, unless there is a marked degree of coronary arteriosclerosis present or other complications have developed in the meantime, such as severe infections, diabetes, cardiovascular syphilis, etc. The symptoms of the decompensated hypertensive do not differ essentially from those of heart failure due to other causes.

The prognosis of the average hypertensive case is influenced unfavorably by a cardiovascular family history with incidence of hypertension, apoplexy, or middle life cardiac or renal disorder. Other unfavorable prognostic signs include the presence of a relatively high diastolic pressure, very marked cardiac enlargement, or

history of progressively increasing dyspnea or angina. Electrocardiographic evidence of severe or progressive myocardial conduction or coronary changes is often an important factor in formulating a thoughtful prognosis.

A good prognosis in hypertensive disease may reasonably be ventured in a case not too marked before fifty, coming of a fairly long lived family, without striking incidence of cardiovascular disease; showing slight or moderate cardiac enlargement with good response to effort. A fairly stable nervous and emotional balance is a good prognostic asset, as is freedom from obesity, diabetes, or renal impairment.

*Surgical Prognosis in Hypertensive Disease:* The operative risk in cases of hypertension free from complications, is very little greater than in normal cases. A systolic pressure may be high without materially increasing surgical risk, if the diastolic pressure and heart size are not too greatly increased and ordinary effort well tolerated, and renal function is adequate. High diastolic pressure is a warning signal, especially when associated with considerable cardiac enlargement and a history of dyspnea or substernal distress on slight effort.

McQuiston and Allen<sup>7</sup> report a series of 350 hypertensive cases undergoing major operations with a mortality almost paralleling that of a normal pressure group, except in the gastric and duodenal cases when the operative mortality in 50 hypertensive cases was 8 per cent. as compared to 3.1 per cent. in normal cases reported by Balfour at the same Clinic. The breast, gall bladder and pelvic mortality rates were almost identical in the normal and increased pressure groups.

The cardiac patient is a fair surgical risk as far as the danger of myocardial failure is concerned. We are convinced that the danger of actual heart failure during or immediately following well conducted surgery, with ideal anesthesia is over-estimated. The carefully supervised, properly prepared cardiac subject is not under an alarming handicap, as far as danger of myocardial collapse or congestive failure is concerned. A good many post operative deaths attributed to cardiac failure are actually due to peripheral vascular collapse hemorrhage, peritonitis, etc.

In cardiac subjects past middle life the increased danger from coronary occlusion and



pulmonary embolism is a factor to be considered. Purks<sup>8</sup> in a study of post operative complications feels that the cardiac patient is more liable to fatal pulmonary infection than the non-cardiac by a ratio of 4 to 1. This study suggests the great importance of routine post operative carbon-dioxid-oxygen inhalations in this type of case.

*The Prognosis of Coronary Disease:* One of the most important causes of cardiac failure and death in the 5th and 6th decade particularly, is coronary disease and its sequelae. With advancing years the coronary arteries become thickened and hardened and the delicate intimal lining becomes roughened and scarred and the lumen narrowed. If the process goes no farther we may have chronic incomplete coronary occlusion with probable gradual development of compensatory collateral channels through arterial anastomoses and even the Thebesian vessels in older subjects. Such conditions may be entirely unproductive of symptoms or may give rise to vague, indefinite substernal distress, mild anginal symptoms, progressive effort dyspnea or paroxysmal nocturnal dyspnea. But if thrombosis occurs at the site of coronary constriction or ulceration, complete occlusion with myocardial infarction ensues, the immediate mortality of which varies with the extent of the involvement. More than 90 per cent. of all individuals dying suddenly, death coming within 5 to 10 minutes from the time they seemed in customary health, will show at autopsy a cardiac lesion, usually coronary thrombosis or rupture of the heart at the site of former infarctions, or more rarely rupture of the aorta. Seldom is cerebral hemorrhage fatal within a few minutes. In spite of these well established facts reports of sudden death due to "acute indigestion" are frequently encountered probably because of the vomiting and epigastric pain so frequently occurring in coronary thrombosis.

The cases that survive the initial attack of occlusion and thrombosis coming on with the severe anginal like pain, must be distinguished from angina pectoris, which is rather generally conceded to be caused by either a transient coronary angiospasm or inability of the coronary vessels to dilate with the increased demand of exertion but without the permanent occlusion that occurs in thrombosis. In contrast with the prolonged nature of thrombosis an attack of angina

lasts but a few minutes. Angina actually *terminates* some stress or strain, whereas thrombosis occurs *sometime after* exceptional effort in an anginal patient, or even while at rest. Fitzhugh and Hamilton<sup>9</sup> in an analysis of significant events preceding 100 fatal occurrences of angina and coronary thrombosis, in anginal patients, found that 31 had indulged in unusual physical exertion and 44 had become unusually fatigued from either exertion or loss of sleep. A series such as this should make us realize that perhaps *some* of these fatal attacks might be preventable or at least deferrable. A fatalistic attitude in this syndrome is held by many physicians, which is anything but justified in the present state of our knowledge. A carefully regulated regimen of living with appropriate treatment should be quite useful in avoiding or postponing coronary occlusion or fatal anginal attacks in the anginal subject. After all it is the mode of living rather than the use of drugs that influences mostly the prognosis of the anginal syndrome. The milder types of coronary occlusion or "occult coronary cases" are the ones that should be given more careful study, for judicious care and treatment of these cases will frequently prevent or defer the major episodes. The development of electrocardiographic investigation in this field has helped materially to crystallize our clinical concept of this syndrome, the symptomatology of which may vary from vague indefinite sensory phenomena to classical occlusive attack, with many typical intermediate expressions.

*Early Subjective Expression of Coronary Disease:* Apart from the well recognized, more typical coronary syndrome we have come to recognize the following symptoms as suggestive of coronary disease. Obscure epigastric pain with severe burning or pressure; vague substernal discomfort; a precordial ache that extends to the sternum; paroxysmal pains in the throat or even in the neck or occiput or even aching pains in the wrist. The purely subjective sensory phenomenon may or may not be associated with other episodes such as cardiac fluttering, paroxysmal nocturnal dyspnea or unaccustomed dyspnea upon mild exertion, developing insidiously without a previous cardiac history.

Objectively, disturbances of rhythm such as paroxysmal tachycardia, auricular fibrillation, runs of premature systoles coming up in an

adult heart, previously symptom free and not showing any of the anatomical landmarks of antecedent cardiac disease, is an extremely suspicious circumstance that should be considered coronary in origin until proven to the contrary. In the absence of hyperthyroidism fibrillation appearing in a previously regular hypertensive heart is more likely than not due to the effect of a sublethal coronary occlusion. That coronary disease should be more frequently present than we have hitherto suspected is not surprising when we consider the fact that arterial degeneration in general is the inexorable and universal result of the aging process through the later decades of life. That this deterioration should so frequently involve the coronary vessels is not inconsistent when we consider the fact that the coronary vessels are the first and most important branches of the aorta and share first hand all of the shocks and strains of that great primary vessel. Then again the cardiac muscle is never resting and being always active should be affected promptly by any impoverishment of its blood supply. Furthermore, Werley<sup>10</sup> found that the coronary arteries are sclerosed twice as often as the renal ones and three times more often than the cerebral vessels.

The prognosis of the coronary syndrome is always fraught with uncertainty, for it is the most treacherous form of heart disease.

Conner and Holt<sup>11</sup> report 62 per cent. of 287 cases of coronary thrombosis, occurring without antecedent cardiac symptoms, in persons who had no reason to doubt their cardiac integrity. The immediate mortality was 16.2 per cent. of 117 cases who recovered satisfactorily from the first attack; 75 per cent. were in good health at the end of one year; 53 per cent. at the end of two years; and 21 per cent. at the end of five years. One of these patients remained in good health for 17 years and died in a second attack during the 18th year. The initial attack of one-third of these cases occurred before the 51st year and three-fourths before the 61st year, indicating that coronary thrombosis must be considered a disease of early middle life, rather than of elderly life. Thirty-four per cent. were known to have had antecedent hypertension, 14 per cent. syphilis and 10 per cent. diabetes.

An indication of the frequent occurrence of

various degrees of coronary occlusion is furnished by the study of Barnes and Ball<sup>12</sup> who found post mortem evidence of a recent or remote occlusion in 5 per cent of 1000 unselected consecutive cases dying of all causes at the Mayo Clinic. Six hundred and eighty-five of the cases were over 40 years of age and in these the incidence was 7 per cent. or one in 13. A majority of these latter subjects had had hypertension during life.

#### SUMMARY

In general the ultimate prognosis of heart disease is influenced principally by the morbid tendencies inherent to each etiological type. Thus patients with rheumatic heart disease often go for many years with non-progressive dyspnea on exertion and no other symptoms whereas patients with syphilitic heart disease usually have congestive failure within a few months after they first begin to be short of breath. When patients with emphysema begin to show signs of cardiac failure, life is not usually prolonged for more than one or two years.

Specific variations in the prognosis of any particular type may be determined by such factors as heredity and family history. There are some families whose members seem especially prone to develop myocardial and coronary degeneration soon after middle age, without any definite antecedent disease. Age, temperament and the presence of obesity or diabetes should all be taken into account in forming a prognosis. Much will depend upon how early in the disease adequate treatment can be carried out and upon the cooperation of the patient in changing his mode and habits of living, particularly in the way of moderating effort and enhancing rest.

The ultimate prognosis is greatly influenced by the degree of myocardial reserve and coronary integrity. Though frequently difficult to evaluate with constant accuracy these factors are often indicated to the thoughtful clinician by such observations as:

1. The degree of effort or stress required to produce dyspnea or anginal symptoms. Dyspnea at rest is a much more dangerous sign than is dyspnea on exertion.

2. The appearance of clinical signs known to be of ominous significance, such as gallop



rhythm, pulsus alterans, coronary occlusive episodes, paroxysmal nocturnal dyspnea and severe congestive states not responding well to digitalis, diuresis and rest.

3. The presence of marked cardiac enlargement with a history of gradually lessening myocardial reserve.

4. Evidence of progressively abnormal changes in serial electrocardiograms. Except for evidence of aborization or bundle branch block, the appearance of such abnormalities as T wave or S-T interval changes on any one tracing has no reliable prognostic significance.

Certain constitutional diseases seriously affect cardiac integrity. They are chronic glomerular nephritis, arteriosclerotic diabetic states, malignant hypertension and cardiovascular syphilis.

Final prognosis in heart disease, especially with decompensation, must always be deferred until sufficient time has elapsed to observe the degree of recovery and restored reserve which the heart may develop, under adequate treatment.

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## SYMPTOMS AND TREATMENT OF THE RHEUMATIC CHILD

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CHICAGO

The symptom complex of acute rheumatism as seen in the adult, with high fever and sudden onset, severe inflammation of joints with swelling, redness and tenderness, the nervous manifestations and drenching sour acid sweats, are not commonly seen in the child. Instead we more often find a slow onset and the group of symptoms are more insidious and cover a longer period of time. The history reveals frequent recurrences of upper respiratory infections followed by malaise and growing pains. There is a decrease of normal turgor and a slight and intermittent fever soon appears. The pulse rate is increased out of proportion to the temperature, profuse sweating occurs at night; this is associated with increasing pallor, with anemia and a slight elevation of the white blood count. Recurrent nose bleeds are common and also choreic manifestations with the occasional development of rheumatic nodes and frequent appearance of slight cardiac murmurs.

The malaise and fatigue are not complained of by the child and are observed by the mother or nurse or school teacher, and are different from the growing pains which cause the child to complain. These rheumatic pains occur mostly at night, usually in the early night hours and are located commonly in the lower extremities although the upper extremities may be involved. Their most common site is back of the knee, next in the calf of the legs and less frequently in the hip and ankle.

The temperature is usually not high. The elevation occurs in the afternoon and evening, 99.5 to 101 being about the average range. In cases of rheumatism of long standing the temperature may even be less elevated during a severe relapse.

The pulse rate is increased to 110 to 140 and the ratio of the pulse and temperature is out of balance as to rapidity if you accept 10 beats to 1 degree of temperature. It is frequently intermittent and often of fair quality but still persistently faster than normal. While the temperature in relapses may not go higher yet the

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pulse rate tends to deviate more from the normal ratio with each relapse.

In the majority of cases the sweating is profuse, occurs mostly when asleep, especially about the head, neck and shoulders, and has a very distinctive odor. During waking hours the skin is usually a little clammy and the hands moist.

Skin rashes would appear to be common, vari-

during the declining or the freedom period of the upper respiratory infection; but not as a usual rule when the respiratory infection is at its height.

The rheumatic nodes are not noted as frequently as described by English clinicians but can be found very frequently if sought. I would rather say that the nodes are much larger in England and easier found, for our experience would show that 15 to 20 per cent. have rheumatic nodes. These nodes are most common on the knuckles.

I have used the term "chorea state" rather than chorea, and by that is meant emotional instability, a tendency to cry easily, a tendency to laugh easily, some mental impairment shown by poor work in school and failure to adjust to the social environment of his daily life, talking in his sleep, disturbed restless sleep, sleep walking, night terror, headaches, epigastric pain and lack of appetite with disturbed digestion, and mild slight twitchings and incoordinated movements.

This talk on symptoms could go on indefinitely but I think more can be accomplished by speaking on one particular pathological, clinical and therapeutic aspect of childhood rheumatism.

I am not saying anything new when I speak of the close resemblance of rheumatism and

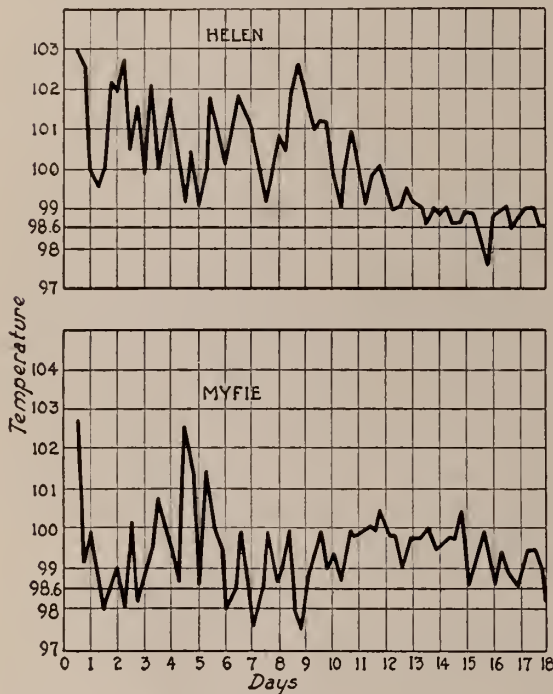


Fig. 1

ous, in fact almost all types and forms of erythema, the type which appears as a fine blush over the pectoral and deltoid muscles, being rather distinctive for rheumatism; sudamina and intertrigo frequently occurring as the result of the fever and sweating. The pallor is rather marked and more noticeable by observation than by the blood count which is probably due to the contraction of the small peripheral vessels, the hemoglobin lessening and the red count not being as much diminished as you would be led to expect by the pale appearance of the child.

Nose bleed, while common in childhood, would appear to be so much more frequent in the rheumatic child as to justify including it as one of the common symptoms of the rheumatic child, fully fifteen per cent. giving history of frequent recurring nose bleeds. The hemorrhages are usually unilateral, often quite profuse

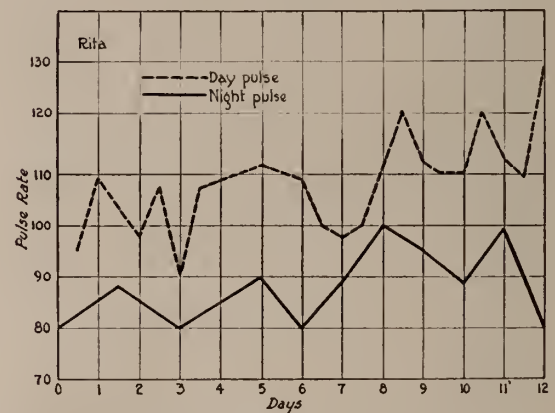


Fig. 2

tuberculosis. Both may be latent and make a sudden dramatic appearance, both may require months to make a definite diagnosis. In the young, tuberculosis and rheumatism both assume a generalized form. Later, with age, they both tend to become localized; in tuberculosis as a chronic fibrous lung condition, in rheumatism as a mitral stenosis of a fibrous nature; the endo

and the pericardium in rheumatism, the pleura and the peritoneum in tuberculosis; the meningitis in tuberculosis and the chorea in rheumatism; the rashes on the skin in both. Tuberculosis and rheumatism claim the symptom complex erythema nodosum; the ability to get a skin reaction with the streptococci culture derivatives such as we get with our Von Pirquet reaction with a tubercular culture derivative. In neither reaction has it been possible, by treatment, to get an immune reaction after vaccine treatment such as we get after a positive Dick scarlet streptococci test followed by five injections of the Dick streptococci toxine. In a pathological sense we might even stretch our imagination and say that in a way the Aschoff nodule is akin to the tuberculosis nodule.

The French have even evolved certain sets of symptoms which they speak of as "le rhumatisme tuberculeux." That the two diseases are frequently associated no one doubts; there is the chronicity of both diseases, the tendency to re-

case of rheumatism. Unless the usual care is taken, thirty per cent. of your rheumatic children will relapse with a very definite attack in eighteen months, very few without a relapse of more or less severity.

Even in books we find the descriptions of subjective and objective symptoms, noted by the mother in regard to her child, a marked similarity in the two diseases. I quote from two

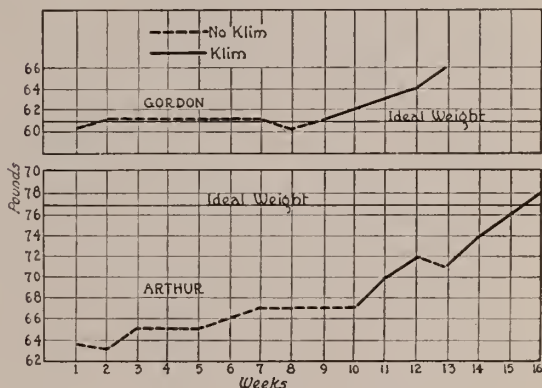


Fig. 4

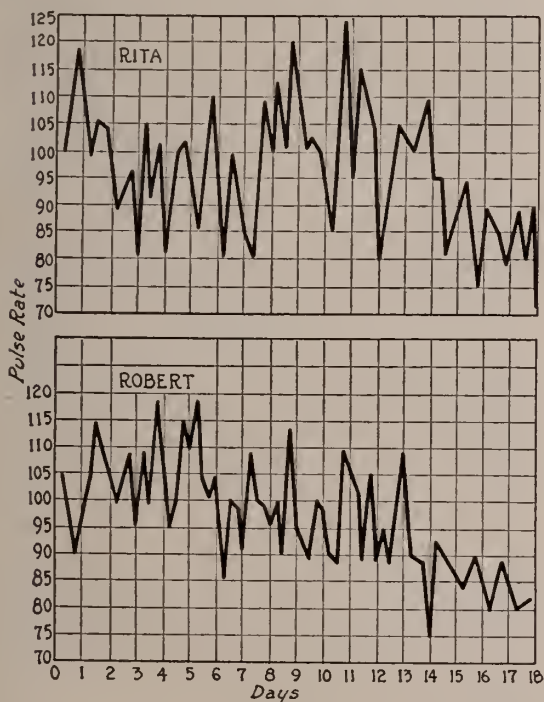


Fig. 3

lapse, the small intermittent temperature; the same progress to a worse condition unless properly handled. The physicians specializing in tuberculosis speaks of an arrested case, rarely of a cure. So should we speak only of an arrested

authors and ask if there is much difference in these quoted observed symptoms:

Abt—Pediatrics, pg. 192—"The manifestations in such children are characterized by insidious onsets. Such children are pale, easily fatigued, poor appetite and no gain in weight. Many complain of slight pain in the legs. Digestive disturbances with paroxysmal abdominal pains are common. There is a change in disposition. Children become irritable, peevish and are easily frightened."

Holt—Pg. 1036—"They are persistently anemic without known cause. In spite of careful feeding they do not gain or lose weight. They are irritable and easily frightened. After these undefined symptoms have lasted a few weeks a slight fever is added."

In our physical examination of these two chronic infections we frequently have to resort to our laboratories to help us make our diagnosis with our blood counts, our skin reactions and our x-ray pictures. It would seem to me that with all the similarity of the two diseases in so many of their pathological and early clinical symptoms it would be wise if we would somewhat follow out the method of treatment of the tubercular patient.

It would seem that, like the physicians specializing in tuberculosis, while not spurning the value of various drugs, yet realize that fresh air, rest and abundant food, careful hygiene and education of the parent, have done more than any

other method of treatment, and have added more years of happiness, usefulness of life than any other one form of medication. It is with this example daily demonstrated to us that makes me ask that we look at the *rheumatic child* through the same glasses. First in the treatment,

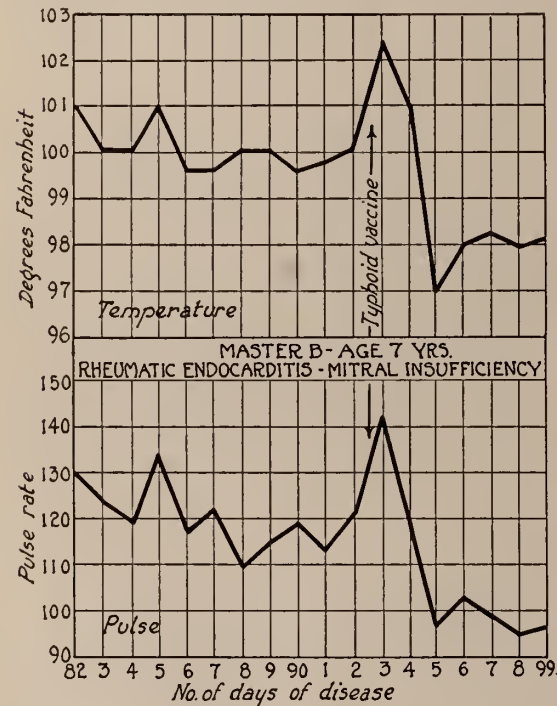


Fig. 5

we should exert eternal vigilance for the onset and for the relapses. Then educate the parent to realize that every little infection may upset the narrow allergic balance of the child and to protect by rest and such medical and nursing care, these little patients through their simple infections; that the symptom "tire" in childhood is of grave importance, much more so than in adults; that slight temperatures are a warning of an infection, that flabby flesh instead of turgor is a symptom, that a failure to gain is a sign of importance. That the *rheumatic child* becoming emotionally unstable and a little more *incoördinate* in his movements is in need of rest just the same as the adult tubercular patient who becomes nervous, loses a little weight and begins to have a few vague pains in his chest. The parent should be trained that just because the child is nervous and has a heart murmur is no reason to relax all discipline. I know no quicker way to send the rheumatic cardiac to the grave

than to spoil the child. Equally important is the education of the child without making him conscious that he is an invalid or a cripple.

Rest and housing are of first importance. Keeping the child in bed is of prime importance and these patients will soon learn to be happy and enjoy working with their heads and hands and not their entire body. The furnishing of play without physical work soon makes play with physical work less desirable and it is frequently valuable in the child's future life that he finds out early that it is more fun to ride than to walk. The difficulty is to know when to let this child out of bed and as yet no method has been evolved except experience. The old rules of a steady consistent gain in weight, somewhere near the normal gain for his age, the temperature below 99 and the pulse below 100 have been added to and lately we have tried to convince ourselves he must have a sedimentation rate below 100. A child who will frequently lie back with the side of his face on the pillow or will lean his head on his play table is a tired child and should not be permitted up. The process of getting up should be a gradual one and carefully supervised. An increase in pulse rate should not be alarming unless it persists, as often this unstable organ responds to the nervous excitement and after a few days, if the pulse recedes, more play time may be allowed. Our method is

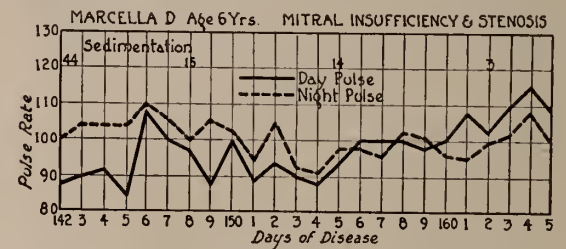


Fig. 6

first bath room privileges then up one hour, then 2, 3, 4, etc. As a rule, before the child is given bath room privileges he has already had considerable exercise in his bed.

*The Housing:* In our experience warmth has much to do with the condition of the child. For a while we open all windows and allow the child to sleep in a cold room during his afternoon nap and at night. The result of this was many more relapses or recurrences, so while we try very hard to keep the air fresh, cold air is avoided.



There are two rooms over our boiler room which even with the windows wide open keep around 75 to 80 and I think all our bad relapses do much better in these rooms.

The nutrition of the rheumatic child furnishes a problem. We feel it is essential, in combating a chronic infection, to improve the physical condition of the patient. Most all these children are suffering from that anoxemia that occurs with the absorption of toxins plus an aversion to food caused by the constant urging, throughout many weeks, that he eat. All the various plans of dietitians, psychologists and pediatricians have been tried. Our most successful plan has been to start with small quantities on the trays and to demand that the tray be cleared before bed play or amusement can take place. This rule is enforced until it becomes a habit. Then gradually the amount of food on the tray is increased. We have tried all methods of fortifying the milk in order to increase the calories taken, such as cream, various malts, cocoa, etc., but we have found fault with all of them. Sugar is frequently poorly tolerated, heavy cream mixture produces nausea, etc. We have finally found that dry milk is our best method. We use from 4 to 12 tablespoons to a quart of milk. It is well tolerated and the child acquires a liking for it instead of growing tired of it.

In the way of medicine, I have nothing to say except what is already known, that all drugs fail at times. I have long had a preference for sodium salicylate in large doses given by rectum for 3 to 5 days then a much smaller dosage by mouth for several weeks. The use of various vaccines or foreign proteins often help and probably should be tried more often, but the effect of an increased temperature and pulse sometimes gives the doctor more of a shock than he wants.

Fig. 1. This is a temperature chart of two patients who came in on the same day. Helen had an acute pericarditis, rheumatic; Myfie had a pulmonary tuberculosis. You can see the similarity of the temperature curve.

Fig. 2. This child had a chorea. We take all our pulses at midnight and compare them with the day pulse. The chorea child will run a great variation in rate between the night and the day pulse. This child's pulse rate has a variation from twenty to 30 beats between the sleeping period and the waking period.

Fig. 3. This chart was taken just to show the effect of rest on the rheumatic child—no medication was given. This chart covers a two weeks' period. You can see the onset, the pulse when the children arrived, and you can also see the day and night pulse. This chart is made to show the pulse rate taken at midnight and noon. The rate drops from 120 to 85, simply by rest in bed with no medication whatsoever. This makes you doubt how much benefit you derive from medication. Rest apparently being the best medicine.

Fig. 4. This chart was made simply to show what can be done to increase your feeding value by adding dry milk to your whole milk. The figures on the lower line show the weeks. Gordon came in and for nine weeks made no gain whatsoever. He was then put on Klim, a dry milk, and he gained satisfactorily from then on. The other child gained very poorly without fortified milk. Then he was placed on the dry milk and at once gained very rapidly, gaining four pounds and one-half in six weeks. Then he was taken off the dry milk and promptly slipped back in weight although he had no recurrence of his rheumatism. Again given milk fortified with the dry milk he again proceeded to gain.

Fig. 5. I spoke very slightly of foreign proteins as to the results you might have sometimes. My own experience has been that the results obtained from foreign proteins as a usual rule are not very satisfactory, but when you do secure them they are startling and encourage you to try again. This child has been under observation for some two months, running a daily intermittent temperature most of the time around 100 and 101. He is seven years old. He was given ordinary typhoid-paratyphoid vaccine under the skin, and that evening developed a temperature up to 102 and a half which the following day came down to subnormal and stayed that way afterwards.

Fig. 6. It was Schlesinger who first called attention to the fact that there was a difference between the night and day pulse. This child had bad tonsils. She had been in the hospital some 139 days, during which time we had been trying very hard to get her into condition where we thought her tonsils could be safely removed. She was then sent to Michael Reese, with a sedimentation test of twenty-five and the tonsils were removed. She came back after the third

day and the following picture was present: The sedimentation had gone up to 44. The night pulse, in contradiction to what I showed you on the chorea pulse rate slide was running higher than the day pulse, the day pulse being in the heavy black line (indicating) persistently below the night pulse until the 14th day when it passed over and from that day on resumed the normal characteristic, which is from six to ten beats slower at night than it is by day.

It also gives you some idea as to how profound a shock you sometimes get on removal of tonsils. When the child went in to the hospital the day pulse was higher than the night pulse. The sedimentation was twenty-five—it jumps to forty-four, and the rate of your night pulse and day pulse reverse.

While Schlesinger's observation has not been extremely common in our experience, it is very valuable when you do find it and it certainly makes you very careful in permitting this child up to take any exercise.

*Resume:* We all should look on rheumatism in childhood as a serious affair and keep these children under much closer observation than is usually practiced. Rest is the most essential during any active period of the rheumatic virus, and moderate exercise can be resumed as soon as you are sure that the rheumatic virus is not active. We still lack a definite method of telling when activity is over and experience and experiment must be our guide. Increased caloric intake is most valuable and can be obtained if proper methods are used. In most instances it is the effect of the active rheumatic virus on the heart and circulation that does the damage, not the failure of the mechanical function.

Hotel Del Prado.

#### DISCUSSION

Dr. H. Wm. Elghammer (Chicago): Dr. Black has covered his subject of rheumatic infections very thoroughly and there is very little I can say to add to it, but I think there are a few points that if not entirely new were brought out in a new light and well worth to be emphasized.

It has been customary to look on rheumatic infection as being separated in rather distinct entities—arthritis, chorea, endocarditis, etc. We also have had the idea handed down to us that it is a progressive condition with repeated infections passing through various stages of growing pains, articular infection, chorea, etc., eventually resulting in a heart condition.

I think the fact that Dr. Black brought out is an

important one—that is the large scope of this infection, its insidious character and distinct tendency to generalization. Although he did not stress the point—the heart condition is not a complication of rheumatic infection, but the heart is actually the first or one of the first organs to become affected. With this point in view we feel we are able to diagnose endocarditis much earlier than in years past, and we do not hold ourselves to the classical findings of murmurs, enlargements, etc., in the diagnosis of acute endocarditis.

Dr. Black mentioned the sweating and I do think this is a rather typical symptom. The sweating comes on after the child relaxes and goes to sleep and usually occurs in the first hour or two. If the child is taken care of—his bed clothing changed, he is not apt to sweat any more through the night. It seems to be a vasomotor phenomena. The pallor is rather typical of the rheumatic child—the pallor of the face, the clammy hands and the cold feet, without a decrease of hemoglobin.

In bringing out the large scope (as I said) of this infection, Dr. Black paralleled the rheumatic infection with tuberculosis and I am sure we all can see the great resemblance in the two infections.

Regarding the rheumatic infection from a pathological standpoint we may recognize the toxic state and possibly the allergic state, then the productive state, that is the formation of Aschoff's nodules and valvular changes, etc. Furthermore, the degenerative and ulcerative changes seen in the so-called bacterial endocarditis may be another expression of rheumatic infection due to a different tissue reaction.

The very last word of Dr. Black's paper perhaps escaped you. It has been a revelation to me. We used to think when considering a cardiac condition, that the compensation of the heart was mainly depending upon mechanical factors. In fact, some three or four years ago we spent quite a little time on devising various tests and exercises to determine the cardiac capacity.

It seems that with the experience we have had and from some tests we have been able to apply to these children that decompensation of the heart rarely occurs from mechanical strain. On the other hand, decompensation is brought on by minute and slight additional infections. Possibly then, mechanical factor is not to be feared in the decompensation of the heart in children, much more so repeated infections.

Dr. Black mentioned the sedimentation test. This test is being used extensively in Europe. During the last two years we have applied it to our rheumatic patients. As you know, the sedimentation test indicates the presence of toxic substances in the blood stream, of some kind or other. We find that if our children can be brought down to a normal sedimentation rate and held there for several weeks they usually make a nice recovery.

The decrease in the sedimentation rate parallels very closely the increase in weight and general improvement of the child. On the other hand a persistently high sedimentation rate over a period of four, five and



six weeks has usually spelled a very gloomy prognosis. (Applause)

Dr. Isaac A. Abt (Chicago): Mr. Chairman, I think I express the opinion of this Section when I say that Dr. Black has presented a very able and instructive paper. Since Dr. Black has seen a great many cases of rheumatic carditis, I should like to ask him what his opinion is concerning rheumatic pneumonia.

Dr. Robert A. Black: I am firmly convinced that there is such a clinical entity as rheumatic pneumonia.

## NEW ASPECTS OF THE PUBLIC HEALTH SITUATION

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SPRINGFIELD, ILLINOIS

The three major communicable diseases which have responded most satisfactorily to preventive and control measures during the last quarter century are diphtheria, tuberculosis and typhoid fever. All three have been plagues of the first magnitude in Illinois. The improvement against each has been tremendous. In 1900, for example, when mortality reports were seriously incomplete, no less than 11,750 deaths were attributed to these three diseases in Illinois, whereas in 1933 they accounted for only 4,387 deaths. Estimated on the basis of ten cases per death there was an aggregate of 117,500 cases of diphtheria, tuberculosis and typhoid fever in Illinois in 1900 when the population was 2,800,000 less than it is today. In 1933 only 11,685 cases were reported and if estimated on the basis of ten cases per death there were only 43,870, considerably less than one-half the 1900 prevalence estimate in a present population nearly double that at the turn of the century.

The improvement, however, has not been geographically uniform. In some areas of the State the decline of all three diseases has been rapid and persistent. In others the improvement has been very gradual indeed, with losses in some counties from one or another of the three diseases reaching heights equal to those that prevailed thirty-five years ago.

This situation indicates that there are important pools of infection which have not been dried up and that there are relatively large blocks of the population which have little or no protection against these preventable infections. The purpose of this paper is, therefore, to analyze the

available statistical data in a way that will establish where control measures with reference to these three diseases are most needed.

This information will make possible a selective program that should produce a maximum of results. Each of the three diseases will be discussed separately.

### DIPHtheria

Rarely has a disease responded more dramatically to control measures than has diphtheria during the last decade. Both prevalence and mortality in Illinois have declined 88 per cent since 1922. Up to that year as far back as reliable records extend there had never been

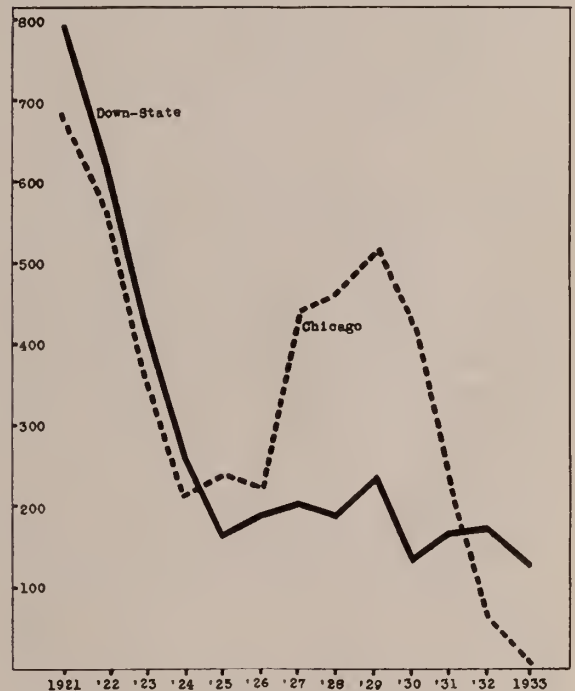


Fig. 1. Deaths from diphtheria in Illinois.

fewer than 1,000 deaths attributed to diphtheria in any year, and case reports ranged from 10,000 to 20,000 annually. In 1933 there were only 134 deaths and 1,695 cases of illness attributed to diphtheria in Illinois. Of the deaths only 9 were reported from Chicago, leaving 125 for the remainder of the State.

In 1922 the mortality from diphtheria was fairly evenly divided between Chicago and down-State, 569 deaths being reported in the city and 612 outside. Vigorous immunization campaigns in Chicago and at strategic points throughout the State were inaugurated about that time and



TABLE 1., DEATHS FROM DIPHTHERIA IN ILLINOIS

	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
Chicago .....	569	366	216	241	224	442	456	515	411	216	66	9
Down-State .....	612	435	256	167	189	207	193	241	132	167	174	125
State .....	1,181	801	472	408	413	649	649	756	543	383	240	134

there followed a rapid decline in mortality in both areas. This downward trend reached its lowest point in 1925 when only 408 deaths were recorded in the State, an exceedingly favorable record up to that time.

From then until 1929 the trend, as may be observed from Figure 1, was again upward, due chiefly to a sharp upward swing in Chicago where the number of deaths reached 515. Since 1929 the downward trend has been precipitous in Chicago and sharp down-State.

The remarkably favorable experience for the State in 1933, a rate of 1.7 per 100,000 population, shows up in bold relief those areas which experienced heavy losses in that year. These are presented graphically in Fig. 2. There were fifteen counties that had death losses of 10 or more per 100,000 people. These are shown in black on the chart. It is interesting to observe that nine of these fifteen counties are located in the lower southern third of the State. In the same area are found six of the eleven counties which had death rates of from 5 to 10 per 100,000 people.

TABLE 2., FIFTEEN COUNTIES WITH HIGHEST 1933 MORTALITY FROM DIPHTHERIA

County	Cases	Deaths	Death Rate*
Hardin .....	6	3	43.0
Richland .....	18	4	28.2
White .....	12	4	22.1
Massac .....	10	3	21.1
Woodford .....	21	3	16.0
Hamilton .....	11	2	15.8
Hancock .....	13	4	15.1
Moultrie .....	9	2	15.1
Alexander .....	25	3	13.5
Pope .....	2	1	12.5
Shelby .....	16	3	12.0
Jackson .....	47	4	11.2
Stark .....	16	1	10.9
Wayne .....	12	2	10.4
Kankakee .....	26	5	10.0
Total .....	244	44	14.9

In contrast to these fifteen there were fifty-one counties that experienced no fatal losses from diphtheria during 1933. During 1922, on the other hand, only eight counties escaped without fatal losses attributed to diphtheria.

If the State is divided into three approxi-

mately equal geographical units, the northern, central and southern, with 33, 35 and 34 counties respectively, it is found that since 1929 the fatal losses from diphtheria have been persistently higher in the southern third than in the central. Since 1930 the losses in the southern third have been higher than in either the central or northern. In 1933 the excessive losses in the southern third were especially marked, not so much because they were higher than usual

Fig. 3. Diphtheria mortality in Illinois 1923-1933. as because of the low points to which the rates had fallen in the other two areas. The trend in the three sections may be observed by reference to Table 3 and Fig. 3.

TABLE 3., MORTALITY FROM DIPHTHERIA BY SECTIONS IN ILLINOIS

Year	33 Northern Counties		35 Central Counties		34 Southern Counties		State	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1923.....	543	11.5	118	10.3	140	14.5	801	11.7
1924.....	333	6.9	59	5.0	77	8.0	468	6.7
1925.....	324	6.9	40	3.5	43	4.4	407	5.7
1926.....	306	6.0	40	3.5	65	6.7	411	5.7
1927.....	543	10.5	53	4.6	51	5.2	647	8.9
1928.....	585	11.0	49	4.3	39	4.0	673	9.1
1929.....	658	12.0	45	3.9	52	5.3	755	10.0
1930.....	493	8.9	24	2.7	25	2.5	542	7.1
1931.....	269	4.8	50	4.4	59	6.0	378	4.9
1932.....	117	2.0	60	5.2	57	5.8	234	3.0
1933.....	46	0.8	31	2.8	59	6.0	136	1.7

Up to about 1929 diphtheria immunization campaigns were so planned as to reach chiefly school children. Experience was insufficient to make generally known the fact that diphtheria prevalence can assume serious magnitude in communities where most of the school population has been immunized. Since 1920, however, greater and greater stress has been laid upon the importance of protecting children under school age. Observation has shown that the immunization of one-third of the pre-school population, plus one-half of the school children, gives to a community a sufficient degree of general immunity to make highly improbable an epidemic of diphtheria.

Since efforts at promoting the immunization of pre-school age children began to be emphasized in Illinois the decline in the prevalence of diphtheria and mortality therefrom has been

especially rapid. In 1929 there were 755 deaths, giving a rate of 10 per 100,000 population. Each year thereafter the number of deaths dropped by a wide margin, the decline ranging from 212 in 1930 to 98 in 1933. The rate fell from 10 to 1.7, during those four years, a decrease of 83 per cent.

For the four year period ending with 1929 the State Department of Public Health distributed to physicians of Illinois toxin-antitoxin sufficient to immunize 305,077 individuals. During the four years ended with 1933 the volume of toxin-antitoxin and toxoid distributed was more than double that amount, sufficient to immunize 694,041. The average annual death rate

36 per cent. In the face of a growing population the actual number of deaths attributed to this disease went down from 5,620 in 1922 to 4,141 in 1933, an improvement of 26 per cent.

An analysis of the mortality data by counties

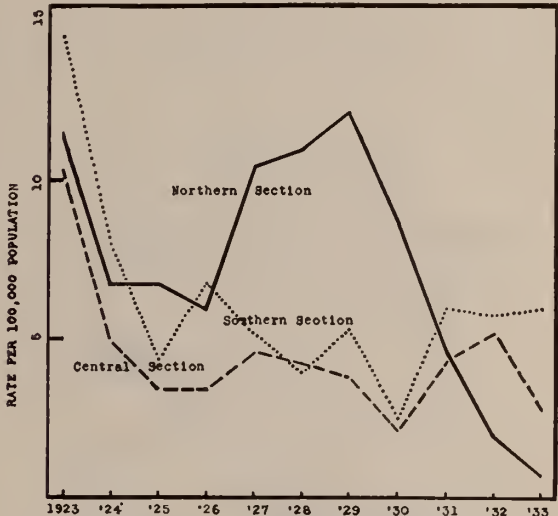


Fig. 3. Diphtheria mortality in Illinois, 1923-1933.

shows a wide discrepancy, however, not only in the degree of improvement but in the prevailing mortality rates. There was one county, Schuyler, that reported no deaths at all from tuberculosis during 1933 and eight other counties each of which had rates of less than 14 per 100,000 people. These nine counties, with the number of deaths attributed to tuberculosis and the rates for 1922 and for 1933 are listed in Table 4. The favorable difference between the 1933 and the 1922 rates is shown in the same table, expressed in percentage. These nine counties, which changed very little in population during the period, had 91 deaths from tuberculosis in 1922 and only 13 in 1933.

TABLE 4., NINE COUNTIES WITH LOWEST 1933 DEATH RATES FROM TUBERCULOSIS

County	1922		1933		Pct. of Decline
	Deaths	Rate	Deaths	Rate	
Schuyler .....	5	37.0	..	...	100
Jo Daviess .....	8	36.4	1	4.9	86
Ogle .....	14	52.2	2	7.0	86
Marshall .....	6	40.6	1	7.7	80
Kendall .....	3	29.7	1	9.3	68
Woodford .....	7	36.2	2	10.6	70
Mercer .....	9	47.8	2	12.0	75
Bureau .....	30	69.7	5	13.0	81
Mason .....	9	54.2	2	13.2	75
Total .....	91	38.3	16	8.7	80

It is interesting to observe that all of the nine counties which had the most favorable tuber-

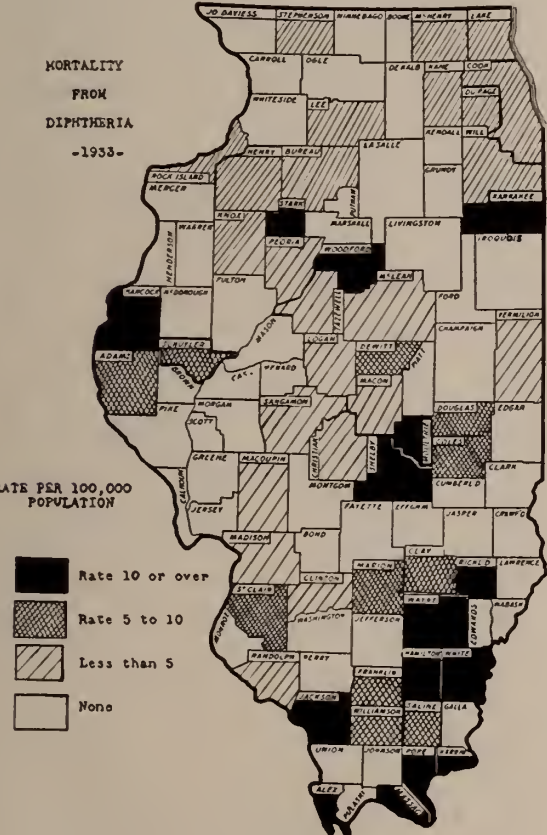


Fig. 2

from diphtheria during the four years ended with 1929 was 8.4 per 100,000 population and for the next four years it was 4.2. The lowest rate in any year of the first quadrennial was 5.7 and in the second 1.7.

TUBERCULOSIS

For the State as a whole the death rate from tuberculosis has declined from 83.9 per 100,000 population in 1922 to 53.6 in 1933, a reduction of

culosis records in 1933 are sparsely settled, rural counties located north of Springfield. All but two are in the northern third of the State and those two, Mason and Schuyler, border upon the northern third. The death rates from tuberculosis in these nine counties in 1933 averaged 80 per cent. lower than did the rates for the same counties in 1922. The average rate for these counties in 1922 was 48.4 and in 1933 it was only 8.7.

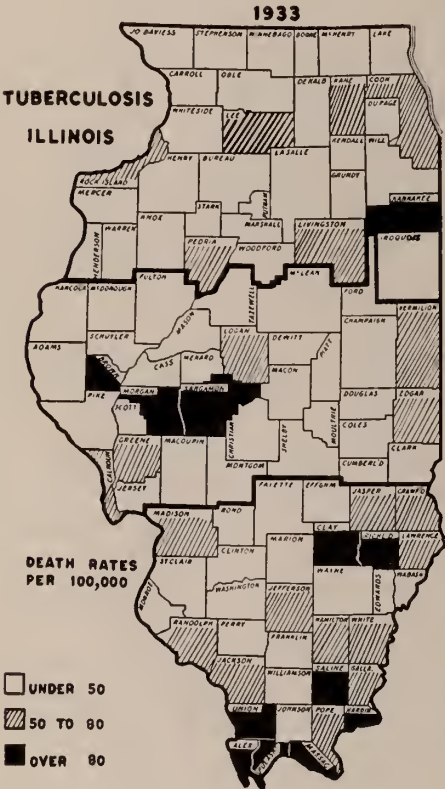


Fig. 4

Another group of nine counties which had the highest rates in 1933 are likewise nearly all sparsely settled rural counties. All but four of these nine, however, are located in the lower southern third of the State, a fact brought out strikingly in the accompanying illustration, Fig. 4. Only one of the four, Kankakee, is located in the northern third of the State. The other three, Brown, Morgan and Sangamon, are in the central section. In Kankakee, Morgan and Union counties there are large State hospitals which are important factors in the unfavorable rates from tuberculosis, the general populations in the counties being too small to absorb the influence of the institutional populations without mani-

festing noticeably higher rates than otherwise would prevail. Sangamon County has two large privately operated tuberculosis sanitariums that accept patients from other counties.

TABLE 5., NINE COUNTIES WITH HIGHEST DEATH RATES FROM TUBERCULOSIS IN 1933

County	1922		1933		Pct. of Decline
	Deaths	Rate	Deaths	Rate	
Union .....	46	226.6	29	146.0	36
Pulaski .....	25	171.2	19	127.0	25
Kankakee .....	68	148.0	63	123.0	17
Clay .....	16	90.4	18	112.0	24
Alexander .....	40	164.6	25	111.0	32
Morgan .....	57	170.1	34	99.0	42
Massac .....	22	161.7	14	98.6	39
Brown .....	9	96.4	7	89.0	8
Sangamon .....	78	75.7	102	89.0	(—17)
Total .....	361	128.0	311	105.4	28

As may be observed from Table 5, each of the nine counties having the most unfavorable 1933 records experienced rates in excess of 89 per 100,000 population. The average improvement in this group over the 1922 records was 24 per cent., compared with an average improvement

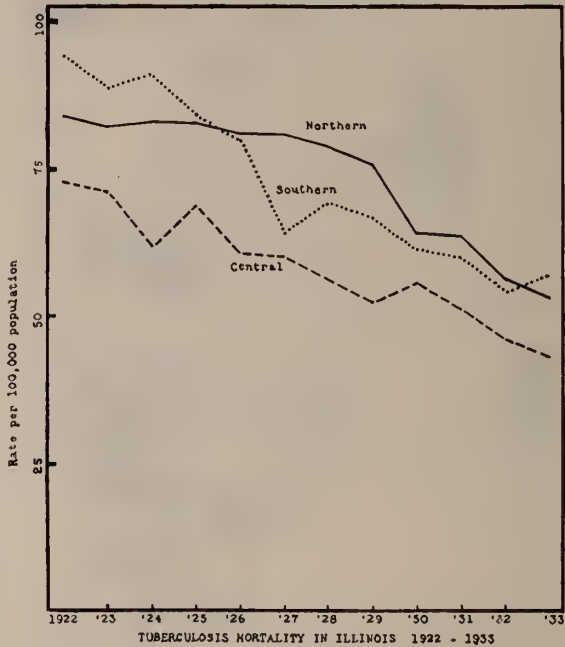


Fig. 5

of 80 per cent. in the nine counties with the best 1933 records. One of the counties with the worst records, Sangamon, had a 17 per cent. higher rate in 1933 than in 1922. In these nine counties, which had some increase in population, the total number of deaths from tuberculosis in 1922 was 361 and 311 in 1933.

Only 15 out of the 68 counties which make up



TABLE 6., DEATH RATES FROM TUBERCULOSIS IN ILLINOIS BY SECTIONS\*

Section	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
33 Northern Counties.....	84.0	82.5	82.7	83.1	80.7	81.1	78.9	76.2	64.0	63.7	56.4	52.9
35 Central Counties.....	72.6	71.3	62.1	68.1	60.4	60.1	55.1	52.5	55.7	51.1	46.6	43.0
34 Southern Counties.....	94.0	89.4	90.1	83.9	80.0	63.3	68.1	66.6	61.6	62.4	53.9	57.3
State.....	83.8	81.5	80.5	79.3	76.3	75.0	73.6	70.2	62.5	62.2	54.0	53.6

\*Rates per 100,000 population.

the central and northern parts of the State had mortality rates from tuberculosis in excess of 50 per 100,000 people in 1933. In other words, more than three-fourths of the central and northern counties had rates of less than 50 per 100,000.

Among the 34 counties that make up the southern third, however, more than one-half, 19, had rates in excess of 50 per 100,000. No

DuPage to 30 per cent. in Lake. The average improvement for the group was 40 per cent. In Table 7 are listed the counties of over 100,000 with the deaths and rates for 1922 and 1933, and the percentage of favorable difference. Sangamon alone in this group had a higher rate in 1933 than in 1922. For the fourteen counties which had a substantial aggregate increase in population the total number of deaths from tuberculosis declined from 3903 in 1922 to 3231 in 1933.

TABLE 7., MORTALITY FROM TUBERCULOSIS IN COUNTIES OF MORE THAN 100,000 POPULATION

County	1922		1933		Per Cent Decline
	Deaths	Rate	Deaths	Rate	
Winnebago .....	64	65.2	38	30.9	52
Lake .....	36	45.4	35	31.5	30
DuPage .....	38	85.6	34	33.0	61
Macon .....	47	69.1	29	34.0	51
LaSalle .....	72	77.9	38	38.6	50
Will .....	91	95.6	47	41.0	51
St. Clair.....	99	70.2	68	42.0	40
Rock Island....	93	94.9	50	50.2	47
Peoria .....	116	101.1	75	50.7	50
Madison .....	89	79.4	82	54.0	32
Vermilion .....	88	99.7	52	57.8	42
Cook .....	2,883	89.5	2,490	59.5	33
Kane .....	109	106.8	81	61.9	42
Sangamon .....	78	75.7	102	89.2	17*
Total .....	3,903	87.5	3,221	57.2	43

\*Increase.

An inquiry into possible factors which have influenced the tuberculosis rates in the various counties indicates that the counties with the most favorable rates have spent a substantially larger per capita amount of money for tuberculosis control than have the nine counties with the highest rates. In two of the nine counties with the lowest rates, Ogle and Woodford, money has been appropriated from special tax funds for tuberculosis control work and funds raised by voluntary agencies have been much greater than in those counties with the highest rates.

Two counties, Morgan and Sangamon, among the nine with the highest rates, have expended funds from tax levies also. Sangamon, however, abandoned the tax levy some years ago and the

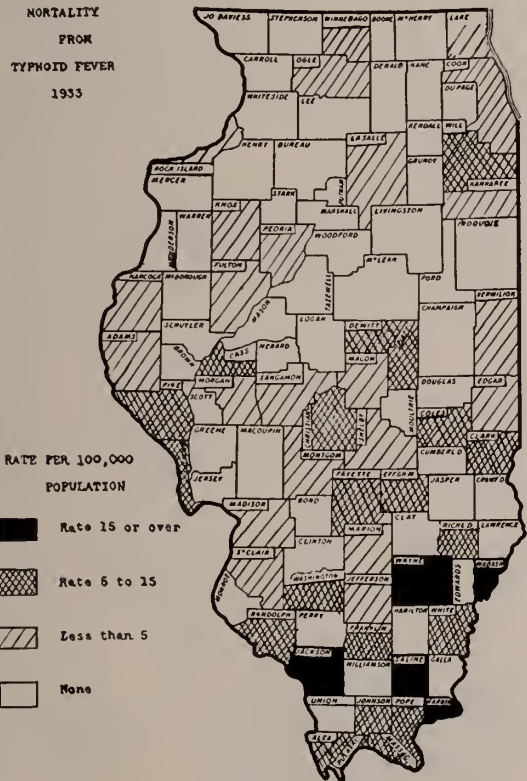


Fig. 6

less than 8 in this group had rates in excess of 80. In short, the biggest tuberculosis problem in Illinois is now in the extreme southern portion of the State.

There are fourteen counties in the State, each of which has more than 100,000 people. In all but Sangamon, the 1933 death rate from tuberculosis was substantially below the 1922 rate. The decline in rates varied from 61 per cent. in

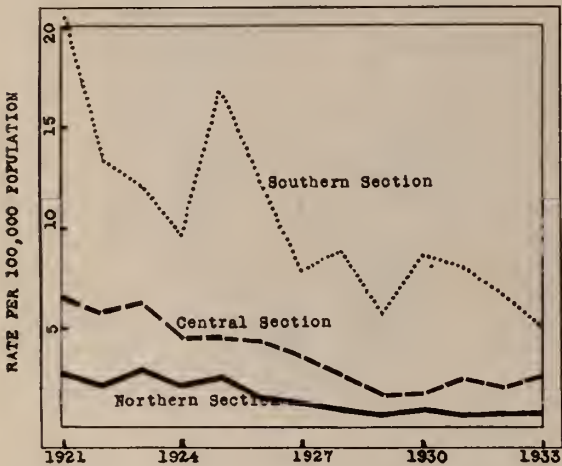
tuberculosis rate in the non-institution population of Morgan has improved to a marked degree.

Among the fourteen counties with over 100,000 people, nine have public tuberculosis sanitariums and all but three, Lake, DuPage and St. Clair, have made tax levies for tuberculosis work. Two of the three, Lake and DuPage, have been able to raise substantial funds through voluntary agencies.

The evidence appears conclusive that the death rate from tuberculosis has declined most rapidly in those counties where the greatest amount of money has been spent for control activities.

TYPHOID FEVER

Mortality from typhoid fever has followed a strong downward trend in Illinois since 1918. In that year the death rate attributed to this disease was 8.2 per 100,000 population, compared



TYPHOID MORTALITY IN ILLINOIS 1921-1933

Fig. 7

with 1.4 in 1933, these being the highest and lowest rates for any year in the period covered.

While the improvement has not been uniformly great from a geographical point of view, the statistical evidence indicates a very marked decline in all parts of the State. It appears that even in those counties which now experience the highest losses there are fewer cases and fewer deaths by far than in 1918. Thus in the twelve counties which had the highest rates in 1933 the average mortality was 17.3 per 100,000 pop-

ulation against an average of 32.5 for the same counties in 1918. Furthermore, in only one county, Hardin, was there a 1933 rate in excess of 20 per 100,000 population, while in 1918 no less than thirty-one counties had rates of that magnitude.

Only twelve counties in Illinois experienced fatal losses from typhoid fever of 10 or more per 100,000 population in 1933. These are listed in Table 8. In 1918 no less than sixty-two out of one hundred-two counties in the State had death rates from typhoid fever of 10 or more per 100,000 population. Conversely there were fifty-three counties that reported no deaths from typhoid fever in 1933 and only ten in 1918.

The tendency has been for a more rapid improvement in the northern than in the southern portion of the State. All but Calhoun and DeWitt among the twelve counties with the highest 1933 rates are located in the lower southern portion of the State.

TABLE 8., COUNTIES WITH DEATH RATES FROM TYPHOID FEVER OF 10 AND OVER PER 100,000 POPULATION IN 1933

County	Cases	Deaths	Death Rate	
			1933	1918
Hardin .....	5	4	57.4	67.2
Jackson .....	28	7	19.6	27.2
Wabash .....	2	2	15.2	49.8
Saline .....	30	6	16.1	32.6
Wayne .....	8	3	16.0	26.3
Randolph .....	12	4	13.6	20.6
Pulaski .....	7	2	13.4	13.6
Pope .....	7	1	12.5	41.5
Calhoun .....	5	1	12.4	48.5
DeWitt .....	16	2	11.0	5.2
White .....	5	2	11.0	34.8
Johnson .....	1	1	10.0	24.9
Total.....	126	35	16.0	25.7

If the State is divided into three geographical units of about equal land area it is found that the proportionate improvement with respect to typhoid fever has been greater in the northern and southern than in the central third. While the prevailing death rate in the southern third, as may be observed from Table 9, is nearly nine times greater than that in the northern and more than double that in the central third, still the degree of improvement has been greater in the southern than in the central area since 1921. A comparison of the sectional rates of 1933 with those of 1921, as shown in Table 9, shows an improvement of 77 per cent. in the northern sec-

tion, 76 per cent. in the southern section and only 63 per cent. in the central section. The trend of mortality in the three sections is shown graphically in Fig. 7.

TABLE 9., MORTALITY FROM TYPHOID FEVER BY SECTIONS IN ILLINOIS

Year	33 Northern Counties		35 Central Counties		34 Southern Counties		State	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1921.....	118	2.6	73	6.3	199	20.7	396	6.0
1922.....	87	2.0	68	5.9	128	13.3	283	4.2
1923.....	134	2.9	70	6.1	115	12.0	319	4.7
1924.....	95	2.0	50	4.4	94	9.7	239	3.5
1925.....	112	2.3	50	4.4	164	16.9	326	4.6
1926.....	65	1.3	48	4.3	117	12.0	230	3.2
1927.....	58	1.1	40	3.5	77	7.9	175	2.4
1928.....	44	0.9	30	2.6	86	8.9	160	2.2
1929.....	37	0.7	18	1.6	55	5.6	110	1.5
1930.....	50	0.9	21	1.8	83	8.5	154	2.0
1931.....	29	0.5	25	2.2	79	8.0	133	1.7
1932.....	35	0.6	24	2.0	66	6.7	125	1.6
1933.....	33	0.6	27	2.3	50	5.0	110	1.4

Rates per 100,000 population.

The relative freedom of Chicago from typhoid fever is an important factor in the favorable rate for the northern section of the State. This, how-

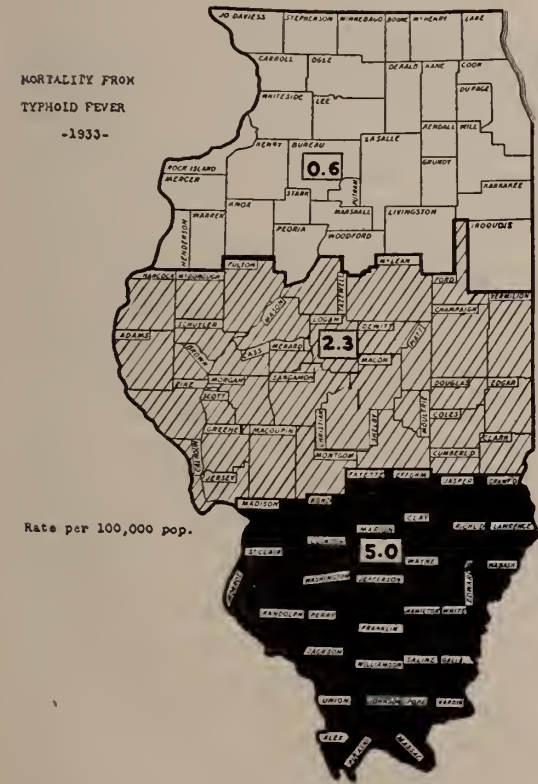


Fig. 8

ever, is by no means the full explanation for the favorable showing in that region. Out of the 33 counties in the northern third of the State,

for example, only ten reported any deaths from typhoid fever in 1933, while eighteen out of 35 counties in the central third and twenty-one out of the 34 counties in the southern third reported deaths from typhoid fever in 1933. Furthermore, for the ten counties in the northern third that had losses, the average death rate from typhoid fever in 1933 was 2.4 against an average of 5 in the eighteen central counties and an average of

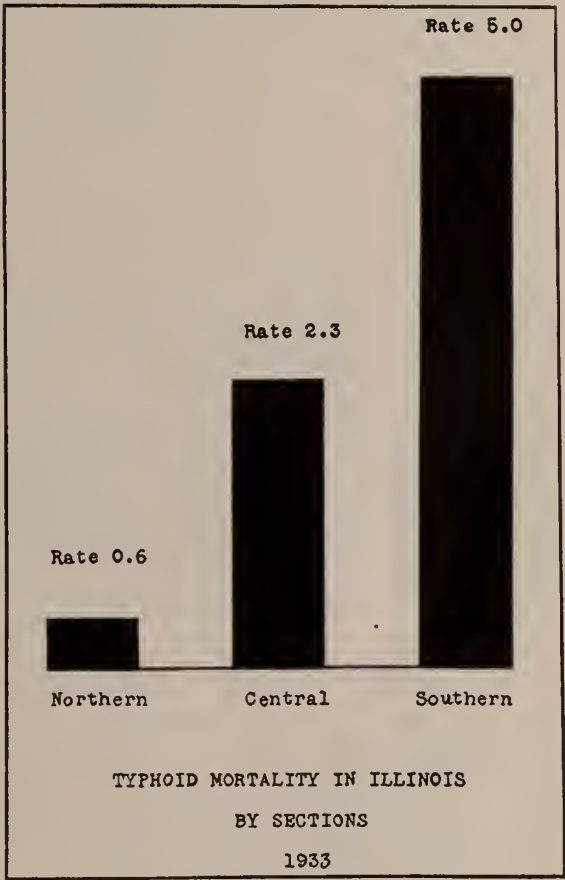


Fig. 9

11.1 in the twenty-one southern counties that had losses. The deaths and rates in each county, listed according to geographical section, are presented in Table 10. The rates shown in Table 10 are based upon the population of each entire section, thus giving a much lower rate for the section than the average for the particular counties in the section that had losses from typhoid fever.

While improvement has been rapid in all parts of the State, it is apparent from Table 10 and Figures 7, 8 and 9, that nearly one-half of all



TABLE 10., MORTALITY FROM TYPHOID FEVER BY SECTIONS IN ILLINOIS

Northern Section			Central Section			Southern Section		
County	No.	Rate	County	No.	Rate	County	No.	Rate
Cook .....	13	0.3	Adams .....	1	1.6	Alexander .....	2	8.9
Kankakee .....	2	3.9	Calhoun .....	1	12.4	Effingham .....	1	5.3
Knox .....	1	1.9	Cass .....	1	6.0	Fayette .....	2	8.5
La Salle .....	2	2.1	Christian .....	3	8.0	Franklin .....	4	6.7
Lake .....	2	1.8	Clark .....	1	5.6	Hardin .....	4	57.4
Ogle .....	1	3.5	Coles .....	2	5.3	Jackson .....	7	19.6
Peoria .....	1	0.7	DeWitt .....	2	10.9	Jefferson .....	1	3.2
Rock Island.....	2	2.0	Edgar .....	1	4.0	Johnson .....	1	9.8
Will .....	7	6.1	Fulton .....	2	4.6	Madison .....	1	0.7
Winnebago .....	2	1.6	Hancock .....	1	3.8	Marion .....	1	2.8
			Macon .....	1	1.2	Massac .....	1	7.1
			Montgomery .....	1	2.8	Pope .....	1	12.5
			Morgan .....	1	2.9	Pulaski .....	2	13.4
			Piatt .....	1	6.4	Randolph .....	4	13.6
			Pike .....	2	8.2	Richland .....	1	7.1
			Sangamon .....	1	0.9	St. Clair .....	3	1.8
			Shelby .....	1	3.9	Saline .....	6	16.1
			Vermilion .....	4	4.4	Wabash .....	2	15.2
						Washington .....	1	6.1
						Wayne .....	3	15.7
						White .....	2	11.0
Total .....	33	0.6	Total .....	27	2.3	Total .....	50	5.0

typhoid in Illinois occurs in the southern third of the State. In those 34 counties is concentrated the bulk of the typhoid fever problem.

An analysis of case reports of typhoid fever for 1931, which are typical, indicates that this disease is now an unsolved problem chiefly of small communities and rural districts. Thus, as may be seen in Table 11, the highest prevalence rates prevail in communities of less than 1,000 people and the lowest in the larger cities.

TABLE 11., CASES OF TYPHOID FEVER IN ILLINOIS, 1931

	Cases	Rates*
Communities of—		
Under 1,000 .....	113	31
1,000 to 2,500.....	85	26
Farms .....	244	18
Cities of—		
5,000 to 10,000.....	68	17
2,500 to 5,000.....	34	12
10,000 to 200,000.....	133	8
Over 200,000 .....	95	3

\*Rate per 100,000 population.

While improvement in sanitary conditions, especially as they relate to water and milk supplies and sewage disposal, has been a dominant factor in preventing the spread of typhoid fever it would seem that the use of vaccines has been important in some areas. During the last four years, for example, the State Department of Public Health has distributed typhoid fever vaccine sufficient to immunize from 18,000 to 28,000 people annually. This is practically double the amount of typhoid vaccine distributed annually a decade ago.

OSTEOMYELITIS OF THE SKULL IN  
FRONTAL SINUSITIS

M. A. GLATT, M. D., F. A. C. S.

CHICAGO

Osteomyelitis of the frontal bone is a dreadful and highly fatal disease. Ballenger<sup>1</sup> in his textbook of diseases of the nose, throat and ear refers to Bulson's review in 1916 of 55 cases showing 37 fatalities. While it is not a frequent concomitant of frontal sinus disease, nevertheless, it is not a rarity. It is rare, however, following acute infections or operative procedures on the other sinuses or the mastoid, irrespective of the type of operation or the infective organism; neither is it as fatal as in the frontal bone.

There are certain anatomic characteristics of the frontal bone, which when understood, will explain the reason why the frontal sinus is more often the seat of complications than the other sinuses. These are as follows: The bones of the cranium including the frontal bone derive their greater blood supply from branches of the dural vessels within the skull and the venous return is by way of the intracranial venous sinuses. Intimate connection exists between the veins and the lymphatics of the frontal sinus mucosa with those of the dura and the meninges. The posterior wall of the frontal sinus contains numerous foramina for these veins offering a direct

Read before Section on Eye, Ear, Nose and Throat at annual meeting of Illinois State Medical Society, at Springfield, May 15, 1934.

route of the infection to the meninges. At times dehiscences occur in the posterior wall of the sinus. The anterior wall of the frontal sinus, similar to the bones of the vault, is built of two plates. The medulla of these two plates contains tortuous channels (canalicular system) into which a network of veins fits (diploic venous system). These veins communicate with each other throughout the skull and also with the subdural space and the venous sinuses.

From the above anatomic description it is clear that an infection may travel directly to the meninges without involvement of the anterior plate or directly to the diploic veins and from there by a thrombotic process to the meninges with or without involvement of one or both plates. It also explains when an abscess is formed under the periosteum with an apparently intact outer plate, an extradural abscess may still be present as a result of the involvement of the diploic veins and the inner plate. The infection may also be transmitted by pressure necrosis and continuity of tissue or the two may be combined in the same case.

Reasoning from these anatomico-clinical facts a logical explanation is given that when an external operation involves the opening of the anterior wall of the sinus whereby the diploic vessels are exposed to the infectious process then the danger of osteomyelitis is thereby enhanced. It is stated that the stripping of the periosteum from the anterior wall is a contributing factor in the osteomyelitic process and that it is also interferes with the repair of bone.<sup>2</sup>

Although in my experience and that of others<sup>3</sup> with the Jansen-Lynch technic in frontal sinus surgery no osteomyelitis has resulted, it is, nevertheless, my impression that the Killian operative technic has been unjustly blamed for some of the cases, where osteomyelitis has occurred post-operatively.

When we accept the thrombophlebitic nature in the pathogenesis of osteomyelitis as it is clinically demonstrated in the two cases herewith reported, and as proven by Mosher and Judd<sup>4</sup> from a study of microscopic sections of the removed bone and the mucosa, we can then explain the occurrence of osteomyelitis in the mild or severe flareups to which a chronic frontal sinusitis may be subject, or where the process is insidious for months and becomes evident after minor or

radical operative procedures. Wilensky<sup>5</sup> states that it occurred even by following the Jansen technic.

In my first case report in particular, it will be seen that had the Killian type of operation been carried out, and the sequestra recovered at a later date, there would have been an erroneous impression that the operation was the cause of the osteomyelitis.

That the periosteum plays a minor role can be argued from the fact that the skull is nourished mostly by the dural vessels, that the regeneration of bone as proven by Furstenberg<sup>6</sup> takes place from the bone cells attached to the dura. Furthermore, the surgeon can easily avoid the criticism by limiting the retraction of the periosteum to the area of bone to be removed as cautioned by Yerger.<sup>7</sup> On the other hand, in the surgery of the mastoid process the periosteum is very often retracted beyond the operative limits; also where extensive subperiosteal abscesses result in much destruction of the periosteum, ill effects therefrom are unusual.

While the criticism of the Killian operation as being the cause of an induced osteomyelitis may have been justifiable in some of the cases, it has, regrettably, had an unfavorable influence on the external operation on the frontal sinus. The opposition to it is still more intensified when one comes to its consideration in the presence of an acute empyema.

A dilemma presents itself when one is confronted with a case of acute frontal sinus infection with signs of edema of the brow and forehead, formation of a subperiosteal abscess, or meningeal irritation.

Very little guidance can be obtained from the text-book references as to the systematic management of this entity, although an occasional mention is made of the external approach when threatening symptoms develop. That no clear conception exists in the treatment of such cases can be noted from reports of the recent literature.

With few exceptions, the treatment consists of palliative measures for the edema or the subperiosteal abscess; when the latter is finally incised, there is further delay in the opening of the sinus until the acute stage has subsided or when threatening symptoms still persist or develop.

Upon a close analysis of these case reports we



observe a variety of end results which are summarized as follows: 1. Complete healing of the wound after the drainage of the abscess, in spite of necrosis of the posterior sinus wall, thus giving a sense of false security, resulting in a fatal meningitis many weeks later. 2. A diffuse osteomyelitis with an extradural abscess six days after the evacuation of a subperiosteal abscess. 3. Incision and drainage of an abscess two weeks after the onset of the edema, repeated two weeks later; osteomyelitis of the anterior wall. 4. Subperiosteal abscess three days duration; onset of convulsions; incision with a release of pus through a necrotic lacrimal bone; four days later extradural, subdural abscess and meningitis by spread through a necrotic posterior wall of the frontal sinus. 5. Evacuation of a subperiosteal abscess five days after its onset; gradual development of encephalitis; frontal lobe abscess discovered four days later; fatal end.

It is obvious that in some of the cases the complication was present at the time of the onset of the edema and the subperiosteal abscess, which followed after a shorter or longer period of the infection in the sinus, while in others the delay in the radical sinus surgery may have been a contributing factor in the final outcome.

The favorable cases are those, which when the abscess is incised or ruptures spontaneously, result in a persistent fistula without any evidence of osteomyelitis of the anterior wall. There are others where the edema subsides quickly and has periodic recurrences with each flare up in the sinus. A stage is reached when a sclerosis of the walls prevents the formation of a subperiosteal abscess. This with a lack of the findings of tenderness may at times mislead one when an intracranial complication is impending at a future flare up.

The fear that an early intervention in any of the above groups of cases may provoke an osteomyelitis or a meningitis is due to the failure of evaluating the signs of edema and subperiosteal abscess as a sign that an extension of the infection beyond the sinus mucosa has already taken place. There is also the perplexity in our minds of reconciling radical surgery with an acute process.

At the proceedings of the scientific staff meeting of the Illinois Eye and Ear Infirmary of January 11, 1933, I stated as follows: "I feel

that there should be a revision of the treatment of acute frontal sinus infections. Too long conservative treatment should not be persisted in when there is swelling externally, especially over the brow and forehead. When there is edema over the mastoid and sagging of the superior posterior canal wall in an acute ear infection we do not hesitate to operate, still we are conservative when it involves the frontal sinus. Some may subside with conservative treatment while in others the delay leads to a diffuse osteomyelitis or meningitis."

To clarify this viewpoint I may state that some of the clinicopathologic signs of this entity find their analogy in the acute surgical mastoid.

We know that resolution in a nonsurgical mastoiditis depends more or less on the pneumatization, being less frequent when the cells are highly pneumatized. If we may compare the frontal sinus and its outlet to the mastoid and the eustachian tube, the former as a highly pneumatized one cell or two cell structure and at times with an aberrant ethmoidal cell and having still greater dural surface in contact with it than has the mastoid, we can well infer the potentialities of the destructive process that may go on within it when there is insufficient or poor drainage during an acute infection.

Edema over the mastoid process and of the posterior superior canal wall which we term sagging, occurring during the course of a suppurative otitis media, has been accepted as the pathognomic sign of surgical mastoiditis. The edema of the brow and forehead associated with an empyema of the frontal sinus is in my opinion just as pathognomic of a surgical process which can be efficiently met with only by the external approach.

Mosher<sup>4</sup> in the March, 1933, issue of the *Laryngoscope* reports his studies of microscopic sections of bone removed from the areas showing edema over them and has demonstrated definite pathologic changes in the trabeculae of the bone. He arrives at the conclusion that when edema is found it is a sign that osteomyelitis is already present.

I am cognizant of dehiscences in the lacrimal and ethmoidal bones permitting a very early swelling of the lids during an acute ethmoiditis or of other extrasinus pathologic states requiring a differentiation. The frontal sinus edema is at



first limited to the insertion of the fibrous pulley of the superior oblique and to the origin of the corrugator supercilii muscle producing the typical swelling of the glabella and brow. In its extension it spreads to the lids and by lifting the periosteum also to the anterior wall of the same side and to that of the other side. In others the edema begins at the anterior surface of the sinus and later spreads to the lids.

The same factors which produce a subperiosteal abscess over the mastoid process, i. e., pressure necrosis of the cortex or a thrombophlebitis, or both, have been proven to be instrumental in the spread of the infection from the frontal sinus. Its presence over the mastoid process with or without the finding of an external fistula upon incision is an undisputed indication to the otologist for exposure and exenteration of the diseased cells, irrespective of the duration of the suppuration in the middle ear. Due to the sad experiences with the Wilde incision in the early history of the surgery of the mastoid process, it has long been discarded, regardless of the fact that occasionally it may still prove successful.

That the application of the same surgical principles in the frontal sinus is a rational procedure can be attested to by the successful results obtained where they have been practiced and by some of the unfortunate sequelae where there has been a long delay or fractional operations around or within the sinus.

The Jansen operative technic for the external approach to the frontal sinus is well suited in these types of cases. By opening only the floor of the sinus when intact or through a presenting fistula it lessens the possibility of a spread of the infection to the diploic vessels of the anterior wall. Drainage is provided externally and intranasally by removing the ethmoidal labyrinth and the ablation of the mucosa. Any necrotic bone found at the posterior wall of the sinus should be immediately removed, up to normal bone area.

While the opening of the frontal sinus through a fistula or through the floor without disturbing the mucosa may be considered as a step in the right direction, nevertheless, it still lacks the following important features: the removal of a suppurating focus, a dissolution of the communications of the thrombotic blood vessels of the mucosa and an immediate thorough inspection of

the cerebral wall of the sinus. The proof of this assertion can be found in the numerous case reports, of which a typical one is that of Reeves:<sup>8</sup> A subperiosteal frontal sinus abscess was evacuated and drainage was established externally and into the nose by enlarging the external bony fistula and the insertion of a nasal tube without the removal of the mucosa. The symptoms of cerebral irritation still persisted until at the second operation performed ten days later the sinus mucosa was removed with the underlying necrotic posterior bony wall and the ethmoidal labyrinth.

It is very interesting to note that the teaching of Koerner in reference to the site of the complication being near the original focus in the diseased mastoid also finds its analogy in the frontal sinus. Excluding the instances where the complicating metastatic foci occur in areas remote from the sinus or in the fulminating diffuse types of osteomyelitis, the source of the spreading meningitis, of the subdural or brain abscess can be traced in the greatest number of cases to a necrosed posterior wall. In those where improvement followed after the discovery of a brain abscess it was usually due to obtaining better drainage in the removal of the posterior wall.

Thus, in the event of the manifestation of symptoms of meningeal irritation preoperatively or at a secondary operation our attention must be directed to the cerebral wall of the sinus in preference to other areas.

Any method of treatment which relegates the above discussed maxims to a secondary position, is not only impractical, but is often fraught with danger.

In the management of the focus in the anterior wall of the sinus and that of the frontal bone extending above it, there are, unfortunately, two extreme opposing viewpoints: the conservative group who are content with drainage and waiting for sequestration and the radical group advocating the extreme removal of bone far into normal areas.

The latter group headed by Mosher,<sup>4</sup> as a result of their histopathologic studies which I have referred to above, have evolved an operative technic aiming to combat the advancing process of the disease which they term as "getting ahead of the osteomyelitic process." This operation originally devised by Tobey consists of forming a

triangular skin and periosteal flap by making a vertical incision from the inner edge of the original Killian incision extending two inches above the area of the edema and reaching to or above the hair line and reflecting it outward. Trephining of the skull is begun in normal bone or if same appears doubtful a new area above it is resected. The dura is exposed and the remainder of the frontal bone, the anterior and posterior walls of the frontal sinus are removed with the exception of the ridge. The ethmoidal labyrinth is exenterated and drainage is provided intranasally and externally.

This operative technic has been tried in seven cases, but unfortunately what seemed highly plausible from a theoretical standpoint, practically has been successfully carried out by the authors only in one case as a single procedure. The poor condition of the patient, the necessarily prolonged anesthesia with much loss of blood have hindered the completion of it as a one stage operation. Thus, the infected focus below, which had to be dealt with at a second operation when the patient's condition permitted, often acted as a reinfecting agent to healthy exposed bone above.

Since this method may be termed a "fortified Killian operation" which requires the preserving of the bone at the superciliary ridge, it is even doubtful if the entire infected focus can be removed. Reinfection and sequestration can still take place.

However, this extensive removal of bone and exposure of the dura have been helpful in the early uncovering of an extradural or a subdural abscess. With its decompressing effect it has undoubtedly prevented a localized meningitis from developing into a diffuse form or into a brain abscess. This can be inferred from the fact that the focal signs suggestive of the latter, have often abated after the decompression. Such favorable observations have also been noted following extensive exposure of the dura in mastoid surgery where signs of localized meningitis were in evidence.

We surely cannot limit the thrombotic process in the diploic vessels nor can we prevent the further extension of the infection overlying the dura by waiting for sequestration. This condition also does not lend itself to an attempted comparison with the osteomyelitic process of the

other bones of the body because the various measures adopted in their conservative treatment cannot be applied to the bones of the skull, in which the danger of an intracranial complication is a constant menacing factor.

I am aware that there are cases on record<sup>9</sup> where sequestration and healing occurred after conservative treatment without any ill effects arising during its course in extensively involved bone. I have knowledge of a case of traumatic osteomyelitis of the skull where sequestration and regeneration have been going on for the past 11 years with neither a cure nor a complication. Nevertheless, one cannot be impressed with this as a rational procedure in all types of cases. On the other hand, I must also make exception in some of the cases where extreme radicalism is not justifiable and where the pursuance of a more conservative policy is preferred.

I realize the shortcomings of generalization or of laying down certain rules governing the treatment of osteomyelitis, especially, when we take into consideration the cases where one type easily merges into another; the physical condition of the patient; the individually inherited local and general body resistance; also the age of the patient affecting a natural local limitation of this malady to suture lines. It is, therefore, with a great deal of hesitancy that I offer the two types which are based partly on anatomical boundaries and partly on clinical signs.

It will be noted that I followed a conservative policy with favorable results in the treatment of the focus of the anterior wall in the two acute cases herewith reported after an early and radical removal of the sinus mucosa and establishment of drainage through the floor as described above.

I may state in this connection that I also obtained the same results in the chronic cases which presented themselves with fistulae and questionable x-ray findings of the anterior wall of the sinus.

We thus have a group, in which the edema or the x-ray findings shows the process to be limited to the anterior wall, when waiting for sequestration is not associated with much danger, providing that the focus in the sinus mucosa has been completely removed and that good drainage has been provided.

In the second group we may include those cases



which require immediate radical removal of the diseased bone from the anterior wall of the sinus and that above it. These are as follows:

(a) When there is no improvement or there is an aggravation in the general symptoms, or where the edema still persists or is spreading after the operative procedures in type one.

(b) Where the x-ray studies show definite bone destruction above the limits of the frontal sinus.

(c) Distant osteomyelitic foci manifested by cyclic periods of quiescence and recurrence in the general symptoms and in the doughy swelling.

(d) The early or late fulminating diffuse type of osteomyelitis.

(e) Onset of meningeal irritation, cerebral pressure symptoms or sinus thrombosis.

In this group it is a serious risk to pursue a conservative policy. Although it is then highly desirable to remove the infected area in one session, but, since the condition of the patient may prevent it, it is more practicable to begin with the exploration of the infected sinus. Should the patient's condition permit, then the other sinus may be opened if deemed necessary, and the bone removal begun from the anterior wall. If forced to stop before the completion of the operation then there is at least the satisfaction that good drainage and an inspection of the posterior wall have been accomplished.

Those who have had the experience with the technic of the exposure of the dura in mastoid surgery will find it easier and will perform it much more quickly in a one stage operation by working upward, than by starting from above by the use of trephines which requires expert technic and consumes valuable time.

I feel that this paper cannot be complete without reference to injuries in or about the frontal sinus. Since the prevalence of mild or latent sinusitis is the rule rather than the exception, then an injury to it must be looked upon with much concern. Time does not permit to dwell at length on the treatment. A concise statement may be made as follows: When the fracture is limited to the anterior wall in an apparently healthy sinus, it should be left alone. When infection sets in the sinus after the injury, or the fracture occurred in an infected sinus, it is to be considered as an osteomyelitis and treatment instituted as outlined above.

The following histories of two patients, who developed an osteomyelitis of the frontal bone in an acute frontal sinusitis, are selected from a group of others who were under my care, to illustrate the practical application of the above enumerated principles.

Case 1. Mr. L. W., aged 34 years, was first seen by me in consultation at his home with Dr. J. Caulfield, on July 15 1932. The history was that of a left sided pansinusitis of 10 days duration that came on after swimming in an inland lake. No history of previous nasal trouble. Conservative treatment brought no relief. For the past 3 days there has developed a progressive edema of the face, forehead and eyelids of the left side and which extended to the lids of the right eye.

The intranasal structures were extremely edematous, bathed in thick pus and all landmarks were obscured. Shrinkage was not successful. It was evident that the infection had spread beyond the confines of the sinus cavity, that conservative treatment could not be prolonged and that any intranasal manipulation, besides being a hazardous procedure in an obscured field, would be insufficient to cope with this pathologic state.

An external frontal sinus operation under ether anesthesia was performed by me at the St. Francis Hospital, Evanston, Ill., on that day. A large subperiosteal abscess was uncovered. Pus escaped under pressure upon opening the intact floor of the sinus. All necrotic mucosa and the greater part of the floor were removed. A profuse discharge followed after opening the left antrum intranasally. No attempt was made to retract the periosteum over the anterior wall of the sinus in search for a fistula nor was the ethmoidal labyrinth disturbed. Examination of the pus and culture showed the *Staphylococcus albus* to be the causative organism.

The postoperative course was uneventful. The external incision healed with the formation of a fistula through which a few drops of pus drained daily. Two pieces of loose bone were subsequently removed from the middle meatus. The advice for further study and exploration of the operative area was deferred by the patient for five months when he became alarmed at the evidence of loose bone at the fistulous opening. X-ray study revealed sequestra of the superciliary ridge.

The second operation was performed by me on Dec. 19, 1932. The sequestra were removed and the complete details of the radical frontoethmoidal operation according to the Jansen-Lynch technic were carried out. In retracting the periosteum along the lacrimal bone and the os planum, a defect was noted which corresponded to the two sequestra removed from the middle meatus as stated above. The usual intranasal and external drainage was instituted. Healing occurred within three weeks with only a dimple-like depression at the inner angle. There has been no recurrence up to the time of this report.

Comment: The short duration of the acute sinus infection in relationship to the onset of the osteomyelitis and the location of the seques-



tra point more to a thrombophlebitis than to pressure necrosis as the pathogenesis. Whether a diffuse osteomyelitis would have resulted in this patient by adopting the Killian approach is difficult to state. Since such a complication has been known to occur following that method for the cure of the chronic types of frontal sinus infection, the anxiety of following such a technic is naturally accentuated when confronted with an acute process. However, the fear of inducing a diffuse osteomyelitis must be subordinated to that of the greater danger calling for the immediate relief of pressure and the removal of the diseased focus within the sinus. Furthermore, the approach through the floor greatly diminishes this possibility. The sequestra removed were the result of the original infection in the bone and surely cannot be ascribed to the first operation.

Case 2. Miss M. P., aged 16 years, was admitted to the Illinois Eye and Ear Infirmary on November 12, 1932, with a diagnosis of acute frontal sinusitis. The history states that she, a non-resident of this city, has never been subject to colds until eight days ago when she developed a sore throat and a head cold. The past three days there appeared a painful swelling over the right eyebrow. Temperature upon admission 101.2 F. Rhinoscopy revealed well defined nasal structures, with thick creamy pus in the middle meatus, and a tender, doughy, cushion-like swelling about  $\frac{1}{2}$  inch in diameter was noted over the right superciliary region. X-ray examination revealed a pansinusitis of the right side. The temperature returned to normal after one week of conservative treatment, while the swelling and the nasal pus discharge still persisted. With the idea of promoting better draining the anterior end of the middle turbinate was removed on the eighth day of a normal course in the temperature. The next day the temperature reached 104.2 F. and returned to normal on the fourth day. This fever was traceable to an infection in a right tonsil stump. On December 6, after an interval of 5 days of normal temperature and four weeks after the onset of the original circumscribed edema of the superciliary arch, there developed a severe edema of the lids and forehead of the right side and partly extending to the left side.

An external frontoethmoidal sinus operation under ether anesthesia was performed by me that day using the Jansen-Lynch technic. There was no subperiosteal abscess. Pus escaped under pressure upon opening the floor of the sinus. The floor as well as the entire mucosa of the sinus were removed. The posterior wall was found intact. In removing the mucosa from the anterior wall an area of soft bone and necrotic periosteum, corresponding to the original doughy swelling came away readily with the slight touch of the dull ring curette. The intersinus septum was partly deficient,

but the left side was not explored. The ethmoidal labyrinth was removed and intranasal drainage instituted. The maxillary sinus was drained through a nasotracheal opening several days later. Unfortunately, the culture of the pus of this case was lost; however, repeated cultures (at a future date) as noted below revealed the *Streptococcus hemolyticus*. The temperature and swelling subsided and healing proceeded satisfactorily. On January 21, six weeks after the operation, the patient developed scarlet fever and had to be removed to the Contagious Hospital. Three months later there were persistent findings of hemolytic streptococci from the granulation tissue at the external fistulous tract. The patient left the city, and I am, therefore, unable to report the final outcome. Nevertheless, from the standpoint of my thesis, there is sufficient important information to make this report worth while.

Comment: It is interesting to note the early onset of osteomyelitis which followed five days after the onset of acute frontal sinusitis, without a previous history of infection in the sinus. This would point to a thrombophlebitis as the pathogenesis. When that occurred no form of conservative treatment was of avail. The external exposure of the sinus within 24 hours after the onset of the edema of the forehead and lids was a safe procedure and possibly prevented further complications. I believe that an interference at still an earlier date would have proved just as safe as it did in the previous patient.

Summary: Most cases of acute frontal sinus infections have been known to respond favorably to conservative treatment as outlined in the specialty text-books. However, there are cases, which, regardless of the treatment instituted to promote drainage, go on to a stage indicative of an extension of the infection beyond the limits of the sinus. This manifests itself after a shorter or longer period from the onset of the original acute sinus symptoms into an edema of the brow and forehead, formation of a subperiosteal abscess or signs of meningeal irritation.

Due to the unfortunate results in a number of patients who developed a diffuse osteomyelitis as a consequence of the radical operation undertaken for the cure of their chronic frontal sinusitis, the fear of the external approach is therefore accentuated when one is confronted with an acute process. This leads to prolonged conservative treatment and ineffective minor fractional operations.

This misapprehension is due to a lack of evaluating the above symptoms as a sign that either an osteomyelitis is already present or that a ne-

crisis of the dural plate of the posterior wall of the sinus or that of the frontal bone above has already taken place.

An analogy is made of each clinicopathologic sign including the complications of this entity with that of surgical mastoiditis in order to prove that an early external approach is a rational procedure in these cases. We may also deduct that this intervention carries with it an element of prophylaxis in that it may prevent in some cases the further extension to a diffuse form of osteomyelitis or that it may lead to an early discovery of a necrotic posterior wall of the sinus, whence most of the intracranial complications originate. Furthermore, the Jansen-Lynch operative technic for the external approach to the frontal sinus, which has proven successful in the chronic cases and rarely caused postoperative complications, can be applied in these cases with much safety.

While the simultaneous complete eradication of the infection in the sinus and its walls is a most desirable aim to be achieved, still from my own experience and that of others, I may state that there is a type where waiting for sequestration after drainage has been accomplished, is to be preferred. There is, however, another type where waiting for sequestration is associated with much danger. The particular differentiation of each type has been described.

Another group of cases which are to be treated on the basis of osteomyelitis are fractures of the frontal bone through an infected sinus or when the latter becomes infected after the fracture.

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#### DISCUSSIONS

Dr. C. F. Yerger, Chicago, Ill.: I enjoyed Dr. Glatt's paper very much and he is to be congratulated on his review of the literature. In this connection I wish to emphasize a few points.

We must remember about not operating on acute cases of frontal and in acute exacerbations of chronic frontal sinusitis. These cases should be left alone as far as possible, until more favorable conditions arise, and we should operate only when we are forced to do so under these unfavorable circumstances. The cases may be divided into groups—the spontaneous group, those which occur spontaneously following acute nasal sinusitis, or, the acute exacerbation of chronic nasal sinusitis. Those that occur following operation we classify as post-operative. It is a well known fact that the post-operative cases exceed the spontaneous cases by at least 25 per cent. That shows the added danger of operating on these cases of acute frontal sinusitis or acute exacerbations of chronic frontal sinusitis. I want to emphasize that if you do an external operation on an acute case you can expect trouble and even in chronic cases you are more apt to get into trouble than if you do some intranasal operation. If you take away the turbinate or enlarge the frontonasal duct from the inside of the nose, you do not run as much risk of osteomyelitis. Why is that? Schilling thought if you attack the anterior bony plate of the frontal sinus wall at the superior external border you get an extension into the diploe of the frontal bone, and you open up the diploic spaces in the frontal bone to infection. You can get continuation of that process either by continuity of the bone infection, or by hematogenous infection, that is, by infection of the diploic vessels, and can develop spots of metastatic infection that are separated from each other. I also would like to emphasize the fact that when you are forced to operate on chronic cases of frontal sinusitis, I think it is preferable to do the Jansen-Lynch operation, rather than the Killian type of operation. The lower plate of the frontal bone is not so dangerous to attack surgically, because you do not open the diploic chain of vessels and you do not infect the diploe or the middle plate of the skull.

These cases are not common. All I could find in the literature was about 125 cases of osteomyelitis of the skull secondary to nasal sinus disease. We must be sure to differentiate syphilitic osteomyelitis. Syphilis of the frontal bone is not uncommon, syphilis is very prone to affect the frontal bone, and also in some of these chronic cases of osteomyelitis we can have tuberculosis of the cranial bones, which is rare to be sure, but it does occur. You must keep in mind the things that can occur, although they are probably not as common as those which are secondary to sinusitis. The following two cases are instructive and illustrative of the different types.

Case 1. Progressive osteomyelitis of the frontal bone secondary to an external frontal sinus operation five days previously for an acute suppurative frontal sinusitis.



This boy, age 12, five days previously had a right external frontal sinus operation at another hospital. He improved for four days following the operation, but on the fifth day he became delirious. On admittance to the otolaryngologic department of Cook County Hospital, on February 12, 1924, the physical examination showed a poorly nourished boy in a stuporous condition, from which he could be aroused, but would quickly relapse into his previous mental state. A soft edema was present involving the scalp over right and left frontal, parietal and zygomatic regions. There was marked edema of the right and left eyelids. The white blood count was 27,000. The spinal fluid showed 52 cells, mostly leukocytes. There was fever of 100 degrees. Operation was performed the next day. The incision extended across the eyebrows and glabella. The anterior plate of the right frontal sinus had been removed at the previous operation and the sinus was found full of thick creamy pus. The anterior plate of the left frontal sinus was now removed and the left sinus found filled with the same kind of pus. Cultures of the pus showed *Staphylococcus aureus*. Both nasofrontal ducts were enlarged by curettement of the anterior ethmoid cells and rubber drainage tubes were inserted into the enlarged naso-frontal ducts. The wound was packed with gauze but not sutured. The following day he became wildly delirious and had a fever of 102. Three days later his sensorium became clear. He continued to have a fever of from 1 to 3 degrees for a period of twenty days following the operation. Nine days after operation he developed an abscess in the right pectoral region which was opened and drained. After two months in the hospital he was discharged and treated in the outpatient department, but was readmitted two months later on account of fistula formation with continued suppuration due to the presence of sequestra. A second operation was now performed, the old incision was reopened, the skin being carefully dissected from the dura. A small extra-dural abscess was found on the right side. The two fistulae in the right and left supraorbital regions were curetted free from granulations and two large sequestra were removed and the wound was packed with gauze. A discharge of pus continued from the fistula located at the glabella and also from a fistula located at the midline just within the hairy scalp. There was a subcutaneous abscess present in the region of the superior fistula which communicated with the inferior fistula, as was demonstrated by pressure on the superior swelling, which caused the pus to flow from the inferior fistula. A third operation was necessary two months later on account of the presence of sequestra as shown by the roentgenogram. Two thin sequestra 1 by 3 cm. in size were removed. The superior fistula communicated with a circumscribed osteomyelitic area 2 by 2 cm. which was filled with granulation tissue. Normal bone separated the intervals between the area of bone necrosis and the area previously operated on of osteomyelitis to the extent of 4 cm. proving that the process, in this instance at least, was due to a hematogenous metastasis from a thrombophlebitis of the diploic veins and not

to involvement by continuity of tissue, as had probably occurred in the area previously operated on. A roentgenogram taken one month later showed shadows suggestive of sequestra and six weeks later two sequestra the size of the little finger nail were removed from the superior fistula from which pus had been discharging. Subsequently there has been no recurrence of sequestration, and the patient has been cured for over ten years.

Case 2. Progressive osteomyelitis of the frontal bone secondary to syphilis.

This man, aged 51, entered the otolaryngological department of Cook County Hospital on September 18, 1924, with the history that six months ago he developed an acute swelling over both maxillary and frontal regions, which was followed by the formation of a fistula on each side of the glabella. One month later an abscess appeared over the left supraorbital region which was followed one week later by an abscess over the right supraorbital region, both of which opened spontaneously and discharged pus. He stated that he had had a saddle-back nasal deformity for the past twenty-four years, which he said followed a nose operation. He also stated that he had had intensive treatment for syphilis and had a positive blood Wassermann test.

Examination showed marked swelling with induration and hyperemia over both maxillary and frontal regions, with discharging fistulae, one on each side of the root of the nose and in each supraorbital region. The discharge consisted of a creamy pus which on culture showed gram positive diplococci in chains. The right eyelids were swollen shut. The nasal examination showed an extensive perforation of the nasal septum. There was a saddle-back deformity of the external nose. The blood Wassermann test was negative. The roentgenogram showed extensive diffuse osteomyelitis of the frontal bone.

Operation: A bilateral supraorbital incision was made, connecting over the root of the nose and extending bilaterally upward along both temporal crests to the hair line at the vortex of the skull. A modified bilateral Killian frontal sinus operation was performed. Necrotic portions of the frontal, nasal, and vomer bones were removed. An extradural abscess was found and drained. The dura was covered with edematous granulations which were removed. Ten days later, a fluctuant swelling presented over the upper part of the forehead. A fistula over the left mid-frontal region was opened and one ounce thick, creamy pus was evacuated. Twenty days after the second operation, a sequestrectomy was done because of the positive roentgenographic evidence of sequestra. The former incision was opened and several sequestra and granulations were removed. Following the sequestrectomy the patient has remained well to date.

Dr. J. R. Lindsay, Chicago: I wish to compliment Dr. Glatt on his discussion of acute osteomyelitis complicating acute frontal sinusitis. His paper has been chiefly concerned with the early management of the case of acute frontal sinusitis, which presents itself with the signs of a beginning complication, as evi-



denced by edema of the brow, eyelid and forehead, and with or without signs of extension to the meninges. The chief point which he has emphasized has been the necessity for early operative intervention by the external route, with complete removal of the mucosa, exposure of the posterior wall, and completion of the radical operation at the first sitting. The remarks which I have to make will therefore be confined to the early management of this type of case, and are based on personal experience with six cases of acute osteomyelitis, complicating acute frontal sinusitis, four of which were patients in the University of Chicago Clinics.

The frequency with which acute frontal sinusitis, with edema of the superficial tissues, develops a spreading osteomyelitis, and the high mortality which has attended both conservative and radical methods of treatment, has made this a much to be dreaded condition. In this respect, the comparison with edema and subperiosteal abscess over the mastoid as made by Dr. Glatt has a stronger significance, in that a spreading osteomyelitis as a complication of an acute mastoiditis is relatively rare, whereas in the case of the frontal sinus, for reasons which are not as yet clear, the appearance of edema is commonly the first sign of beginning osteomyelitis. When edema of the brow and forehead appear, the release of the pus from within the sinus and provision for adequate drainage, is the first essential. As to how early operative interference should be undertaken, and how radical the procedure should be, opinions differ.

With regard to the danger of opening up new pathways for infection in the diploe of the bone by early operative interference, I wish to call attention to the method used by Beck of Heidelberg in the treatment of uncomplicated acute frontal sinusitis, as reported in the *Ztschr. für Laryngologie Rhinol. Otolog. und ihre Grenzgebiete*, January, 1934. The external plate is drilled through and a cannula inserted and left in place for the purpose of irrigation until the acute attack is passed. The lack of the development of osteomyelitis or other complication following this procedure in hundreds of cases, as reported by Beck, should provide some reassurance when one is confronted with the necessity of providing drainage by operative means.

Although opposed to operative interference in the case of simple acute frontal sinusitis, I agree with Dr. Glatt that when edema of the brow and forehead appear, the urgent necessity of providing adequate drainage from the sinus supersedes any possible danger from opening new pathways of infection as a result of trauma. As to the necessity or advisability of carrying out the complete external frontal operation, with removal of all the mucosa, in every case of this type as soon as the edema has made its appearance, as recommended in Dr. Glatt's paper, I do not believe that a hard and fast rule can be laid down. For instance, in the case which develops frontal sinusitis suddenly, without having had a previous attack, and in which the mucosa of the sinus had not been previously diseased, if the appearance of the edema is followed promptly by providing adequate drainage from the frontal sinus by

means of an external opening, large enough to allow inspection of the mucosa and posterior wall, it is probably safer procedure to postpone further steps of the operation until the acute stage has passed over. Washing out of the antrum is advisable at the same time. In those cases where one is dealing with a recurrence or an exacerbation of the chronic sinusitis, and where the mucosa is found to be hyperplastic and polypoid, the removal of the diseased mucosa is an essential part of the operation.

While it is not safe to draw conclusions from a small number of cases, a brief summary of the following cases from the University of Chicago Clinics will illustrate these points. Of the four cases two recovered and two ended fatally. Of the two which recovered, both were patients suffering from the first attack of frontal sinusitis. One followed a severe cold, one followed swimming. Both developed marked edema of the brow and forehead. One had the complete radical operation according to the Lynch technic four days after the onset of edema. The patient was last seen four months afterward, apparently cured. The other had a small subperiosteal abscess opened and an opening about  $1\frac{1}{2}$  cm. in diameter made into the frontal sinus. Mucosa not removed. Both antra were later washed and ethmoids removed in three weeks. Complete recovery in six weeks. Small scar removed one year later. It is probable that, provided the external drainage is made promptly after onset of edema, simple drainage may be the wisest step as the initial procedure.

Of the two cases which terminated fatally, both developed osteomyelitis as a result of an acute exacerbation of an old chronic sinusitis. The first case died from meningitis, ancephalitis and frontal lobe abscess. Edema of the superficial tissues did not appear, but a complete radical operation with removal of sequestra from the posterior wall, was done as soon as signs of meningeal irritation were evident. This patient had had an intranasal operation six years previously, but had been subject to periodic acute attacks afterward. The patient ought to have had a radical operation much earlier, but at the time he presented himself at the clinics, it was obvious that only thorough radical measures offered any hope for recovery. The other fatal case was also an acute osteomyelitis developing with an acute exacerbation of an old chronic sinusitis with fistula.

The operative procedures carried out in this case were along conservative lines for over three months until signs of meningeal involvement appeared, when radical removal of the diseased bone from the frontal area was carried out. The patient died of meningitis. Judging from the results obtained by McKenzie, Furstenberg and Mosher, it seems probable that this patient would have had a better chance for recovery if more radical operative measures had been instituted at the onset of the osteomyelitis.

The last x-ray shows an osteomyelitis of several years' standing following an acute frontal sinusitis. Operative treatment for the osteomyelitis had been of the conservative type. The patient developed osteomye-

litis in many other bones of the body with marked deformities. This case came to the clinics after the acute stages were past, hence I have no comment to make regarding the treatment, but merely show the x-ray to illustrate this type of complication.

As one reviews the cases that have been reported in the literature both under conservative and radical management, one is led to the conclusion that the hope for better results in the treatment of the acute frontal sinus complication lies in more prompt interference surgically, as soon as the signs and symptoms indicate the beginning extension of the disease through the wall of the sinus.

Dr. M. Reese Guttman, Chicago: Dr. Beck and I have seen six of these cases with two deaths, and I would like to discuss the clinical management of osteomyelitis. This slide illustrates something of the pathology you have. The marrow spaces have been filled with a purulent exudate with evidence of fibrous healing. Some blood vessels have undergone occlusive thrombosis. Here is the extent of the osteomyelitic lesion.

Concerning the time of operation:—We lost two cases which were operated on too early. From the slide you can see how these spread. If you operate early, before localization occurs, any surgical trauma may spread the lesion. You are then confronted with meningitis or other intracranial complications. Both our cases expired with a meningitis as the operation was performed within a short time after the spreading osteomyelitis made its appearance. This teaches us that early, before limitation of the inflammatory process has occurred, any trauma may cause death. Four cases got well. We waited two to three weeks. The primary lesion and swelling were not more than the size of a half dollar in extent, yet the osteomyelitis showed a very extensive area of invasion. So you can see why the second point is made. Operate at the proper time. In the subacute stage you must go beyond the confines of the actual limitation of the process. The tissue you saw apparently looked grossly normal to both Dr. Beck and myself, yet microscopically it showed marrow spaces filled with pus. We should limit our surgical enthusiasm; wait, as we do in a mastoid, two or three weeks, unless there is evidence of a brain abscess, meningeal abscess. Usually the parents are anxious to have something done and it takes courage to wait, but it should be done.

Dr. H. L. Ford, Champaign: There are some questions I should like to ask Dr. Glatt. Would it not be possible to compare the thrombophlebitic process in some cases with the similar type in a mastoid? Prophylactic trephining at the base of the edema is supposed to be an advance in treatment—or is that the opinion? Edema of the eyelids—what does that mean? If it does not involve the forehead it can very frequently be handled by conservative measures.

Also why does osteomyelitis occur more frequently in children than in adults? I have had two cases in children, both of the frontal type, at least four inches above the orbital rim. One died, one recovered. It

seemed to me that no surgical measures could be employed in such cases. In determining the type of operation, rather, than to saying one should do the Jansen-Lynch operation would it not be better to take into consideration the shape and size of the sinus from the x-ray standpoint before deciding on the procedure? In an acute fulminating case would it not be well to trephine at the limit of the edema?

Dr. Joseph Beck, Chicago: So much has been said by the discussors, particularly by men who have had a great deal of experience—what can I add? I would like to comment on Dr. Ford's remarks as to the trephine point that Mosher makes. As to its stopping the spread of infection—it is not exactly as he puts it. You might get the wrong viewpoint. He, Mosher, has found clinically, and I have seen it myself, that the edema is an important factor in that type of osteomyelitis, the phlebitic type. The edema is about two fingers breadth ahead of the diseased process, so that your incision must be further away than the x-ray picture would indicate as to the extent of the disease. Dr. Guttman showed you the sections of tissue which was removed and which we thought at operation was healthy—yet the histopathology shows you what it is, namely diseased.

What I got out of this discussion and the paper, and what you should also have gotten are two important facts: It is frequently a staphylococcal infection and we are accustomed to say that such infections are milder in character than strep. The second thing is that it is not the type of infection in which you can wait for delimitation of the general process, as in osteomyelitis of the long bones. Do not be led away by the general surgeon who is talking about osteomyelitis of the long bones. We are not dealing with the same thing at all in osteomyelitis of the frontal sinus.

Dr. M. A. Glatt, Chicago (closing): I wish to thank the discussors for their help in clarifying and emphasizing the subject matter presented by me. Anyone's experience with these cases, no matter how extensive his practice or his clinic connections, is limited, and it is therefore natural when one is confronted with this problem, to draw upon one's knowledge from other areas of the body for guidance in the management of such a case. My thesis attempts to show the close analogy of this condition with the surgical mastoid, to prove thereby the urgent surgical character of this entity which calls for early intervention. I also wish to lead you away from the ultra-conservative attitude of those who attempt to compare this condition with osteomyelitis of the long bones. This analogy cannot be accepted in a narrow sense and it may be difficult to fit in the suggestion of Dr. Ford of the coalescent and hemorrhagic forms of mastoiditis with this condition.

Regarding edema of the lids not being a dependable sign in the diagnosis, I regret omitting the reading of that part of my paper dealing with the differentiation of the edema. Furthermore, in case of error in diagnosis, when after the evacuation of the abscess or after an incision before the abscess has formed, the sinus mucosa is found normal, there is very little to be feared from this exploration.



As to the question of the more frequent occurrence of this malady in children, it is quite true, especially of the diffuse form. This again emphasizes my statement as to the difficulty of laying down certain strict rules in the treatment of osteomyelitis where some cases have a natural limitation to suture lines, when some degree of conservatism can be carried out, while in children in whom the diploic vessels are more marked, there is communication across suture lines making such limitation less possible, and a conservative policy is rather hazardous.

Dr. Beck has answered part of the question with reference to the Mosher operation, and I may add herewith, in some cases the pathologic report showed that normal bone areas which were reached at the first operation became subsequently infected by the focus below. I brought this point out with the object of emphasizing the importance of giving precedence to the focus below.

In regard to Dr. Ford's question: The diffuse form, whether it starts as a progressive or a fulminating type, requires radical measures. Of course there are some where the virulence is high, the spread of the osteomyelitis and the intracranial complications occur in rapid succession, and it is quite obvious that a fatality is impending from the very start of the disease. To wait in these cases for the thrombophlebitis to subside or localize cannot be accepted as practical, when there are signs of edema which often heralds a subdural abscess, or when cerebral pressure symptoms call for an exploration and decompression.

In reference to syphilis complicating or in association with osteomyelitis of the skull, as brought out by Dr. Yerger, I wish to state that my experience is limited to two cases. In one, seen in the early days of my practice, I was inclined to ascribe the entire symptom complex to the syphilitic process for which he was then actively treated. The second patient, who was under my care at the Infirmary, presented a chronic pansinusitis with two fistulae in the floor of the frontal sinus. My impression from these cases is that, in conjunction with antisiphilitic treatment, the operative interference is not contra-indicated, and that we should not be misled by finding a positive Wassermann reaction.

With reference to Dr. Lindsay's citation of the work of Beck from Heidelberg, whose extreme radicalism in opening the anterior wall in acute uncomplicated cases of frontal sinusitis will, I am sure, not be followed by many in this country. I appreciate Dr. Lindsay's deductions and encouraging remarks as to the safety of opening the frontal sinus, especially when done through the floor and where there are definite indications to relieve the pressure within the sinus. I have given the reasons why the mucosa should be completely removed at the first operation. We usually see these cases when the mucosa has gone through a degenerative process and it is actually removed even by slight swabbing of the sinus. Since inspection of the entire cerebral wall is essential it naturally calls for removal of the mucosa. Judging from the apparent

security of opening the anterior wall by Beck, we may consider the removal of the mucosa as a procedure still less to be feared.

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## MOSES GUNN, PIONEER CHICAGO SURGEON

NATHAN FLAXMAN, M. D.  
CHICAGO

Moses Gunn, the youngest of four children, was born in East Bloomfield, Ontario County, New York, on April 20, 1822. He had a long chain of ancestors derived from a family clan in the northern part of Scotland. His father, Linus Gunn, was a prosperous and well-to-do farmer. His mother was Esther Bronson Gunn, born in Massachusetts. They were of strong character, very efficient and devout in their religion, Protestants. The name of Moses denoted a fondness of his parents for the famous biblical character.

Gunn attended the local schools until the age of 12 years when he was placed under the tutelage of a theological student who had become a member of the household. This relationship existed for three years when he entered the East Bloomfield Academy for a classical education. His schooling was interrupted by a serious illness, pleurisy and empyema, which made him an invalid for several years. He had an empyema necessitans which drained for many months. The family was advised to give him a change of air, so he was sent on a sea voyage. While en route to New York on the "Packet Boat" a very sympathetic lay passenger gently informed him that he had consumption and would die in less than a year. Nevertheless, he recovered and later indulged in active exercises and horse-back riding to overcome the sunken side and the dropped shoulder.

His long siege of ill health moved him on to the study of medicine. In 1842 he entered the office of Dr. Edson Carr of Canadaigua, New York. His preceptor had a countrywide reputation for skillful and successful surgery. Gunn assisted at many difficult operations during the time he was with Dr. Carr, yet it was not until October, 1844, that he entered the medical school. At the Medical Institution of Geneva, New York,



was a former student of Dr. Carr's and a demonstrator of Anatomy, Corydon L. Ford. At the suggestion of his preceptor, Gunn entered this school and became the roommate of Ford. After two courses of seven months each and the intervening time spent with Dr. Carr, Gunn was graduated from this school, which later became the Geneva Medical College in 1831 and was finally closed in 1872 but probably became the Medical Department of Syracuse University. While in the medical school, Ford took more than usual interest in Gunn who took an unusual interest in practical anatomy. During this time they laid plans for their brilliant future. Their well made plans as professors in surgery and anatomy were adhered to very closely.

The enterprise and enthusiasm of Gunn were enormous. On the sixth day after his graduation he was westward bound for medical adventure. With him, in a trunk, he carried a huge colored cadaver that Geneva had received from a State prison. He arrived in Ann Arbor on a cold snowy February day in 1846. With his huge cadaver, an innate strong personality, and real ability for organization and constructive work, he organized a private course in anatomy both didactic and practical two weeks after his arrival. In addition, he entered the practice of medicine and surgery in the front rooms of the house in which he taught anatomy. One of the early pupils in this discrete back-room laboratory was Edmund Andrews, later a leading surgeon in Chicago. At this early stage in his career Gunn readily demonstrated his ability as a fine teacher, a combination of unusual lecturer with profound knowledge of his subject. He gave the first organized course in anatomy in Ann Arbor and probably in Michigan.

Here in Ann Arbor, after he had been there about one year, Gunn gave aid to Sager and Douglas in their efforts to establish a medical school. These men were successful and in July, 1849, Gunn was appointed professor of anatomy and surgery. The medical school did not start regular sessions until October, 1850. In the interval between his professorial appointment and the opening of school, he made an inspection tour of the medical schools and hospitals of New York, Boston and Philadelphia. His first class at the medical school in 1850 numbered 92, and

each year gradually enlarged until his last class in 1866 totaled 525.

He was exceedingly busy during these early years, engaged in private practice, taught anatomy and surgery, followed classical readings, and became proficient in the German language. The task of obtaining and developing clinical facilities fell upon Dr. Gunn, as the University of Michigan Medical School was from its very beginning a scientific, and not a practical or clinical school. For twenty-five years the school had no hospital or anything like it for clinical facilities. Gunn originated the idea of having outlying practitioners bring their patients to the clinics for consultation so that the students obtained full advantage of each situation as it presented itself.

In 1848 he married Jane Augusta Terry, the only daughter of Dr. M. Terry, who was a physician. They removed their household to Detroit in 1853. In the same year he gave up the chair in anatomy and obtained the appointment of his old friend and teacher, Corydon Ford. Gunn engaged in general practice in Detroit. He journeyed to Ann Arbor twice a week for surgical lectures during the seven month school year. He worked as co-editor of the *Medical Independent*, a Detroit monthly medical journal in 1857. The later years in Detroit he limited his practice to surgery.

On the first of September in 1861, he joined the Army of the Potomac as surgeon to the Michigan Fifth. He took his army work very seriously and worked day and night aiding the many sick and wounded. He was at the battle of Williamsburg, took part in the Peninsular campaign, and was an ardent supporter of General McClellan, "Little Mac." Ill health and continual distress because of dissatisfaction with his superiors in the medical corps forced him to resign as a regimental surgeon. He returned to Detroit in July, 1862, a very thin and debilitated man. After he regained his health he continued his teachings at Ann Arbor until 1867. During this latter period in Detroit, tragedy of the starkest type entered the family life. His sixteen-year-old son, the oldest of his four children, who had shown a natural leaning to surgery during the Civil War, perished in the Detroit River while on a fishing trip with a friend.

In the spring of 1867 he was invited by the

faculty and trustees of Rush Medical College to accept the chair in surgery left vacant by the death of the brilliant Dr. Daniel Brainard. Gunn resigned his chair at Ann Arbor, after sixteen years of herculean endeavor to build up a surgical clinic, and moved his family to Chicago. At his inauguration at the opening of the new buildings on the north side, great interest was shown by the large audience present. He began work immediately and for twenty years, until his death, gave a brilliant service to the institution.

In 1871 the new college was destroyed in the Chicago fire, and along with it Dr. Gunn's office which was in the building. He lost two exceedingly valuable possessions which could not be replaced. One was a cabinet of mounted anatomical specimens that were collected over a period of many years, and the other was the manuscript of a work of surgery nearly ready for the publisher. He had numerous other difficulties. His library was destroyed and much of his surgical practice was lost or scattered. Fortunately his house remained and here he established his office. He continued to practice only surgery, but for a time after the calamity considered the return to general practice.

In the winter of 1879 he was dangerously ill from an arm infection and pyemia. Few of his fellow practitioners thought he would recover. To recuperate, he went to Europe with doctor friends. He visited the continent again in 1881, his wife accompanying him.

During the last twenty years of Gunn's life, Rush Medical College flourished and its fame as an institution of medical education spread widely. This was due, in a large measure, to his business energy, professional skill, and personal popularity as a teacher. He became attending surgeon to Cook County and St. Luke's Hospitals; and in later years to Presbyterian and St. Joseph's Hospitals. He was consulting surgeon to St. Luke's Hospital when the first printed staff list appeared in 1869.

The personal appearance of Gunn was very striking, and one that would attract attention anywhere. He was over six feet tall, well proportioned muscularly. In his early years he had a blond goatee, which contrasted well with his deep blue eyes. Later he had a reddish beard which became gray and then snowy white and was always worn a la Burnside. His hair was

very long and hung in large ringlets, made each morning around the moist fingers of his adoring wife. He wore a Prince Albert coat, a high hat, usually a white vest, and striped trousers. From his neck a long, slender, gold watch chain hung majestically. His appearance seemed fantastic and this gave him a reputation for foppishness that he hardly deserved.

He had most of the finest traits a man could have. He never boasted and was not vain. He was a real optimist. He used words with exactness and absolute clearness. To his fellow practitioners he was always fair, true to his profession and too full of the business of life to indulge in jealousy of others. He had one outstanding virtue which his patients, his colleagues, and his students commented most upon, and which they fully appreciated. In all appointments he was very punctual. He was on time to consultations and classes alike. As an illustration of this excellent habit, along with his energy and decision, the following story has been oft told and re-told: "There was to be a faculty meeting in the evening. In the morning Dr. Gunn was called to a case of strangulated hernia thirty-two miles away. Of course his attendance was given up; but promptly at the hour he was present for business. He had driven in his sulky over Michigan roads to the patient's residence, but the attending physician had not arrived; the case was urgent, and, assisted only by the patient's wife, he operated successfully, dressed the wound, consigned the patient to the tardy doctor he met at the door, and in eleven hours from the morning's start was quietly asking for the business of the evening."

During the forty years in practice, he established himself as an authority on surgery, both as a very intelligent and skillful operator and teacher. He studied all of his cases carefully; had a very accurate knowledge of anatomy, and always appeared to be in a hurry but no surgery was poorly done. In the surgical clinic he had few unexpected accidents, and he took every operation seriously so that no fancy gestures, unnecessary talk or actions were allowed. Charles B. Johnson spoke of him as the most skillful operator that ever picked up a knife, and added that sometimes in the hurry of an operation he would place an instrument in his teeth and hold it there till needed a moment later. However,



with the advent of aseptic surgery he accepted and practiced this with great faith and good results.

He made many minor contributions to surgery, and one major work that was outstanding. This was his work on dislocations of the shoulder and hip joints, but worked out the general principles for all dislocations. Previous to the discovery of anesthesia, the general opinion prevailed that the important factor preventing the reduction of a dislocation was muscular contraction holding the misplaced bone firmly in position. Even after the introduction of anesthesia, dislocations could not be reduced with ease. To the surgeon, dislocations of the shoulders and hip caused great despair, due to the tremendous force necessary and the many failures of replacement. Gunn removed the muscles of cadavers which left the bones and joints free, and then produced similar dislocations. He studied his experiments carefully, and determined the factor that caused such difficulty was the untorn portions of the capsular ligament which would become tense as the dislocation occurred. He showed, by logic and actual demonstration, that by putting the bone in the exact position that it had been at the moment of dislocation and then exercising moderate reverse force the bone passed into the normal position. He announced this work early in his career in 1853 before the Detroit Medical Society. His work preceded that of Henry Bigelow's by fourteen years, but was published in a local western medical journal. He enlarged on his work in 1859, and again returned to the subject in 1884 when he published an excellent article on dislocations in the *Chicago Medical Journal and Examiner*.

He enjoyed two hobbies very much. One was horse-back riding and the other was amateur astronomy. He rode as much as possible, and was a very striking figure on horseback because he dressed fastidiously and had the handsomest mount obtainable.

In February, 1887, he toured California and appeared in the best of health. He visited many of the cities but enjoyed Santa Barbara the most. During the summer of that year his health gradually declined and he died in Chicago on November 4, 1887. At the time of his death, Gunn was a past president of the American Surgical Association, an original member of the American

Association of Genito-Urinary Surgeons, a member of the Congress of American Physicians and Surgeons, and also of the local and national medical societies.

After his death, his wife collected his memoirs and published them in book form in 1889. A very fitting closing to such a noteworthy career was stated by his wife in the memoirs:

"Those who had known him long and intimately could not know all his inner life. He thanked God for mere existence. He never outlived the romance of his love, and perhaps it is not too much to add, that over a period of almost forty years, in letters to his wife were passages worth living—and dying for."

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#### PSYCHIATRY AND THE GENERAL PRACTITIONER

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I cannot at this time think of any branch of medicine the early recognition of which means more to the patient than psychiatry and there is no branch of medicine that is less understood by the general practitioner. There are several reasons for this:

First, up until a few years ago the treatment of mental diseases was not taught in the medical schools as a separate branch, but as a division of the general subject of medicine and attendance was not compulsory. This is the way it is still being taught in a great many schools. Of the 79 medical schools in the United States, the subject



is taught more or less in 60 of them, leaving 19 in which it is not taught at all. This state of affairs hardly prepares a physician to intelligently give advice relative to the handling of such cases should he come across them in his practice, which he is sure to do for it is the general practitioner who first sees these cases and not the specialist.

Second, many physicians are not interested in psychiatry; it does not appeal to them and they really do not care whether they treat such cases or not. With others, mental cases irritate them and they do not have the patience to attend them. It is quite true one seldom gets any cooperation from a mental case. They cannot or will not tell you about themselves. They talk either too much or not at all; are headstrong, wilful and bent on having their own way; refuse medicine and often food and not infrequently attack attendants or doctors; so one cannot really blame any physician for not wanting to attend them, but they are human beings who need medical attention and it is up to us as medical men to give them the best attention possible. If we would stop long enough to realize the fact that all the undesirable symptoms in a mental case are due to pathological conditions and that the patient is a sick man just the same as though he was suffering from typhoid fever or pneumonia the case would appeal to us in a different light and our interests be aroused.

It is not necessary that a physician be a mental expert in order to give intelligent advice relative to a mental case. He does not have to distinguish borderline cases or even be able to tell the difference between dementia praecox and manic depressive psychosis. What he wants to be able to do is to give reliable advice as to whether the case in question should be treated at home or committed to an institution and also to be able to care for the patient at home should the family so desire.

The commitment to a state institution is a serious matter and should receive a great deal of thought. All committed patients lose their citizenship; they cannot vote or transact legal business, or even sign checks and this state of affairs may last indefinitely even after the patient leaves the hospital unless discharged as cured. If discharged as improved they have no legal rights as far as signing papers is concerned or

looking after their own property. A great many business concerns will not take back a former employee who has received treatment at a mental hospital unless discharged as recovered. But this is not all, a person who has ever been a resident in a state hospital is more or less a marked person; people watch and talk about him when he returns home and frequently he is returned to the institution on the old hearing, without trial, on the complaint of someone who may not be as mentally fit as he is.

When sending a patient to a private institution we find things entirely different. He does not lose his citizenship, he can vote and sign papers and checks and although he may be as crazy as a "March hare" his signature will be accepted in any court. Private sanitariums, however, are expensive, even the cheaper ones charging around \$40.00 a week are far beyond the means of a great many people, while those charging more are only for the rich. It is my opinion that no one should be sent to a private sanitarium unless there are sufficient funds to keep him there indefinitely if necessary. When there are only a few hundred dollars in the family bank account, the patient and family are both continually worrying on account of the expense, which interferes with recovery and as the account dwindles and the patient does not improve satisfactorily, the institution is often blamed, especially if the family physician has said the case only needed a few months treatment. It is a mistake for any physician to place a limit on the time a psychosis will last, for nothing is more uncertain. All prognosis should be guarded for there is always a possibility of the most promising cases becoming chronic.

A physician who is called in to see a mental case has several things to consider. Is the condition such as to allow the patient to be cared for at home? Is he homicidal, suicidal or liable to become so? Is he depressed or noisy? Has he a tendency to wander away from home? Is he destructive to clothing or furniture? Combative? Impulsive or very untidy? Any of these symptoms being present would cause one to recommend institutional treatment. If it is decided to send the patient to a private sanitarium the physician should take a personal interest in the matter and see to it that the place selected is one where an earnest effort is made to give the

patient as much diversion and entertainment as possible. I say this because *some* private institutions keep their patients in bed, especially the troublesome ones, the greater part of the time. This mode of treatment may be all right for certain nervous conditions, but the majority of mental cases need diversion. They should be kept busy doing something, if only playing ball or taking walks into the country. If this can be done the patient's condition both mentally and physically will be greatly benefited.

Depression is a frequent symptom of mental disorders and wherever present the patient should be considered as a potential suicide and the necessary precautions taken. This is hard to do sometimes because the relatives cannot be made to realize the truth of this statement (where the relatives will not take the proper precaution against suicide). The physician should refuse to treat the case at home and recommend institutional treatment. I don't know why, but it is true that there are a great many more suicides in private institutions than state hospitals. I believe suicide is often suggested to a patient by taking away certain articles with which they might injure themselves, such as suspenders, belts, bath robe cords, razors, etc. In fact I have had patients tell me nothing was further from their minds than self-destruction, until they noticed certain things had been taken out of the room. This got them thinking just why this was done and the thought occurred that perhaps it was because it was feared they might injure themselves, but after the thought of suicide had occurred to them they could not get rid of it.

A mental case always does better among strangers. Relatives never fully realize the true state of affairs, they are too sympathetic, too obliging, scoff at the idea of suicide and the patient resents having to take orders from them. If, however, after due study of the case it is decided to treat it at home, insist upon having at least one paid attendant or nurse and two are better. The nurse or attendant should be an intelligent person and the more intelligent, the better result you are going to obtain.

It takes a tactful person to get along with a mental case and one who has a great deal of patience. The patient must be entertained one way or the other. If we can find something he is

interested in, so much the better, but keep him busy. This is where a tactful nurse will succeed where one less tactful will fail. The nurse should never allow the patient to dictate even to the slightest degree. He or she must be master of the situation and by assuming this attitude from the very first a great deal of trouble will be avoided.

Another piece of good advice is; don't try to argue your patient out of his delusions for it cannot be done. The ideas are just as real to them as ours are to us and arguing only antagonizes them and really does harm. This is especially true where the ideas are of a paranoid nature. The patient at once considers you as being in league with his enemies, may even imagine you are a spy for them. When this occurs he will become suspicious and watchful and all cooperation as far as he is concerned ceases.

If for any reason it is thought best to keep the patient in bed for a short time, which may be necessary where there is a poor physical condition to deal with, he should be entertained at least a part of the time and not left entirely to his own thoughts. Such a patient can be read to from interesting books. The topics of the day can be discussed, cards and different games can be played and even basket making. It will frequently be found the patient is so absorbed in his own thoughts that it is only after considerable urging he can be made to do the simplest thing and then only for a short time, but with patience and perseverance one can accomplish a great deal. What one wants is to try to create an interest in something and when this is done the hardest part of our road has been traveled.

Of the manic depressive group, melancholia is the only one that can be managed outside of an institution and this only when the melancholia is relatively mild in degree, but if the patient be delusional and hallucinating the case is usually one for commitment even if the amount of depression is not great. Cases of melancholia are especially adapted to rest methods, quite commonly rest in bed, full feeding and gentle bathing and massage can be instituted without much difficulty. However, this is not always the case with massage, or other mechanical procedure. The patients are apt to become disturbed and made nervous by the handling and manipulating, but occasionally a tactful and



gentle nurse succeeds in getting the patient used to it.

Where the patient suffers from a loss of appetite, or refuses to eat on account of his delusions, he may occasionally be persuaded to take sufficient food, but frequently tube feeding has to be resorted to, and the most satisfactory way to feed a patient is through the nose. A medium size rubber catheter with a small funnel attached to one end is all that is needed, through this can be poured egg nog, milk, lemon or orange albumin, thin soup, etc. The length of time to wait before starting tube feeding depends upon the physical condition of the patient. If he is strong and robust we can wait two or three days, or maybe longer, but if the physical condition is poor, feeding should be commenced as soon as he or she refuses to take sufficient nourishment. At first only a small amount of nourishment is given, but as the patient gets used to being fed in this way the amount is increased until a quart or even more can be given twice a day. The feeding tube is an excellent way to give cathartics and sedatives to patients who refuse medicine and who are noisy and disturbed. The medicine can be given along with the regular feeding, or, in fact, any time it may be desired. The patient may be seated in a chair or lie on a bed. The nurse should hold the patient's head in one position and in the case of resistive patients one or even two attendants may be necessary to hold the patient and prevent him from pulling the tube from his nose. The nasal tube should be greased with vaseline and gently introduced in a direction parallel to the floor of the nose. Frequently it will be found that for some reason or other, such as a deflected septum, the tube cannot be passed, in which case it must be withdrawn and the other side tried. During the passage of the tube, the patient may experience the feeling of suffocation but if he is told to breathe through the mouth this feeling will be relieved. The tube should be gently pushed backward and will glide along the posterior wall of the pharynx into the esophagus and thence into the stomach. While passing the tube it is wise to gently depress the chin, as by this expedient the tube is much less likely to enter the larynx. If it should, the patient will at once start strangling and show other signs of distress.

Of the praecox group, only the simple type

should be treated at home and even here one seldom meets with much success. These patients (the simple type), are indifferent, lazy, careless of personal appearance and often given to tantrums of temper. They do not take kindly to supervision and often disappear from home for days and weeks, preferring to lead a tramp-like existence. The women are apt to be immoral and neither the men or women have the sticktoitiveness to hold a position for any length of time. They seek the path of least resistance and do not mind in the least being supported by relatives or friends. They are not, however, homicidal or suicidal and are seldom destructive of clothing or furniture.

Hebephrenic type of the praecox group cannot be cared for outside of an institution. They are destructive, irritable and given to acts of violence. They frequently deteriorate early and become quite untidy in their personal habits and appearance. They hallucinate and may entertain ideas of a persecutory nature.

The paranoid and catatonic types of praecox group cannot be cared for outside of an institution. They are destructive, irritable and given to acts of violence. They frequently deteriorate early and become quite untidy in their personal habits and appearance. They hallucinate and may entertain ideas of a persecutory nature.

There are a great many epileptics who never see the inside of an institution, what we call epilepsy without psychosis. There are others however, who fall under the term, epilepsy with psychosis. These should never live anywhere but in an institution, for their own good as well as the community at large. Epileptics occasionally become depressed, especially if they come to realize the seriousness of their condition, which happily for them they seldom do. When they become depressed, however, they are quite suicidal and not a few have committed suicide. The majority of epileptics are cross, irritable, headstrong, domineering and hard to get along. They are usually quite religious in a superficial way. These different conditions are more prominent just before or after a seizure. Whenever an epileptic furor takes the place of a seizure, which not infrequently happens, the patient becomes a veritable mad man and will murder without the least hesitation.

I expect more mistakes have been made in the



diagnosis of general paralysis of the insane than any other mental condition. This can readily be understood when one considers the nature of the disease. Few, if any, paretics consult a physician voluntarily, they have a feeling of well being, of fitness for things which cause them to scoff at the idea of being sick. They only consult a physician to please relatives or friends. Frequently the physician is asked to call at the home, the patient not being aware of the intended visit until he arrives. Naturally under this condition he is non-communicative, laughs at the idea of needing medical care and may conduct himself in a perfectly normal manner.

In the study of mental conditions it must be remembered that frequently, especially in the early stages, the patient is perfectly able to and does conduct himself properly in the presence of strangers, only showing abnormal conduct and behavior reactions in the presence of his own family, which may put some doubt as to his insanity in the mind of the examiners, but in the case of paresis there are unmistakable neurological findings, which stamp the disease at its true value. I refer to the Argyll-Robertson pupil, speech defect, pathological reflexes, tremors, etc. Paretics are dangerous patients to try to care for at home on account of their impulsive actions, lack of cooperation and general untidiness; owing also to the fact that the great majority of them do not feel sick, they refuse to remain away from office or store and get into all sorts of trouble on account of poor judgment and frequently squander large sums of money or enter into impossible contracts. They are irritable, quarrelsome, and suspicious, frequently accusing their wives of infidelity and when aroused are really dangerous. A great many early paretics are cared for by their family physician for a considerable time and it is only after marked mental symptoms appear that an institution is thought of and no physician should hesitate to recommend hospitalization when he finds the case is not improving, which can be determined by frequent examination of the blood and spinal fluid. He should also bear in mind that these patients are suspicious and very impulsive, often commit acts of violence without a moment's notice, so he should be prepared for any emergency. General hospitals will not take a mental case if they know it, unless they have a psychopathic ward,

which few of them have, so when a patient suddenly becomes very violent, there is nothing left to do but take him to jail until arrangements can be made to send him elsewhere. This is certainly a very unfortunate state of affairs and need not always occur if the physician has kept in mind that such a thing might occur and is prepared to meet it. As far as the treatment of these cases (paresis) go it is well not to depend on any one remedy, but to try them all until one is found which seems to suit the case better than the others. It is not my intention to go into the treatment of paresis. We all know the remedies used, they can all be administered in the office. Just at the present time the best results are being obtained from the malaria treatment combined with tryparsamide and mercury.

We often blame people for sending their old parents, either father or mother, to a state institution and there is no doubt that quite frequently the state is imposed upon, but very often this is not the case. A person suffering from senile dementia or arteriosclerosis can be cared for at home under favorable conditions but these conditions do not exist in every home. Where the mental disturbance is a mild one, all that is needed is some one to be with the patient all the time and possibly a little bromide at bed time to insure sleep and counteract the tendency to wander around at night, which this class of patients so frequently do. These patients are quite childish and need a great deal of attention. They want to be entertained and if they can be kept busy doing something, no matter what, they will be kept out of mischief and will rest better at night. If all cases were so easily managed everything would be simple enough but unfortunately this is not the case. Frequently the patient does not recognize relatives or friends and although in his own home, begs continually to be allowed to go home and will get out of the house at every opportunity day or night, wandering around in an aimless sort of manner and frequently getting lost. When prevented from having their own way they become quite angry and do not hesitate to fight. Periods of excitement occur quite frequently in the aged, especially the arteriosclerotic, during which they are combative, destructive and even homicidal. It is impossible to keep these people at home. Even in institutions they cause considerable trouble.

There are a number of people in the world who, although given every opportunity never make good. They are continually getting into trouble, are egotistical, self-satisfied, care nothing for the feelings of others, may or may not be alcoholic, but always blame others for their lack of success. These are the psychopathic personalities. They seldom see the inside of an institution, because they put up such a good appearance few judges or juries will adjudge them insane, but occasionally some long suffering relative will get tired of paying the bills or of making good checks forged by one of these individuals and succeed in having him committed. In such cases, however, the benefit from commitment is nil as far as the patient is concerned, but it is a big relief to the relatives of such an individual to know he is where it will not be possible for him to get into any more trouble.

Mental defectives either with or without psychosis frequently become disturbed, noisy and destructive, in which case a physician may be called in to administer a sedative. In such cases a history of the case will usually give one a pretty good insight as to just where the trouble is. Where there is no psychosis present the condition will clear up in a few days, but where there is a psychosis the case is one for commitment.

If our quiet patient who is being cared for at home, suddenly becomes violent or very noisy, or if we are called upon to see a case that is very much disturbed, it is quite necessary that we do something at once to prevent the patient from exhausting himself or from injuring others. If the excitement is of the milder type he may be persuaded to take 15 or 20 grains of trional, 10 grains of veronal, or a mixture of veronal 10 grains and sulphonal grains 15. Luminal in small doses  $1\frac{1}{2}$  to 3 grains often proves very efficacious. If the excitement is very great and the struggles of the patient severe, hypodermic medication should be resorted to and the best for this is morphine  $\frac{1}{4}$ , hyoscin 1/100 or morphine  $\frac{1}{4}$ , apomorphine 1/40; this will bring results in from 10 to 15 minutes and the patient will sleep two or more hours. Of course, if this has to be repeated several times, it gradually loses its power and a larger dose must be prescribed. Sodium luminal can be given hypodermically and seems to be entirely free from objections. It

is very soluble and the administration of 3 grs. is usually followed in from 15 to 20 minutes with marked sedative reaction without any appreciable influence on pulse or respiration.

In considering remedies that are of value in bringing about rapid sedation we should not forget paraldehyde. This is a remedy which causes sleep almost immediately, certainly within 15 to 20 minutes and this too without producing the slightest cardiac or respiratory depression. Its disgusting odor and offensive taste are its chief objections and yet many patients, especially male patients suffering from alcoholic excitement, can be induced to take it if mixed with a little whiskey or milk. In cases of great excitement 2 drams may be administered with prompt effect but the sleep produced only lasts two to three hours. Paraldehyde, however, may prove to be a valuable help when scopolamin and morphine have been given in small doses and acting slowly have been ineffectual in producing sleep. Or when trional has been given and is ineffectual in producing sleep. Under such circumstances paraldehyde hastens the sleep while the other remedies already given, prolong it. For extreme excitement we have had considerable success with sodium amytol injected into the muscles of the thigh or intravenously in doses of  $7\frac{1}{2}$  to 15 grains. In the choice of hypnotics and method of administration, we must be guided entirely by general principles. If used at all they must be used promptly and in efficient dose.

#### CONCLUSION

No physician, either general practitioner or specialist, should ever put a limit on the time a psychosis will run, for nothing is more uncertain. Sometimes in order to get a patient's consent to go to a hospital or sanitarium he is told he will only have to remain there a few weeks or just long enough for an examination; after admission he soon finds that he has been deceived and at once becomes resentful and suspicious; he assumes an antagonistic attitude and his mental condition is aggravated. Never deceive a patient for he is sure sooner or later to find it out and will never trust you again. Never deceive a mental patient; they are naturally suspicious and deception can only do harm.

A great many mental conditions can be satisfactorily cared for at home under suitable



supervision, but in the majority of cases it is to the benefit of both the patient and his relatives that he receive hospital treatment and as soon after the psychosis is recognized as possible.

Remember a mental patient is a sick patient and needs medical attention and we as physicians should give that attention to the best of our ability. If we can train ourselves to look upon the untidiness of these patients, their lack of cooperation, combativeness, irritability, delusions, hallucinations, impulsive acts, etc., as symptoms of a disease the same as we consider the symptoms of typhoid fever or pneumonia, our interest in psychiatry will be aroused and the patient as well as ourselves materially benefited.

## HEMORRHAGIC INFARCTION OF THE GREATER OMENTUM

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Hemorrhagic infarction commonly follows closure of branches of the portal vein, especially when there is an associated disturbance of the general circulation. The clinical manifestations of such an infarction are referred to the part involved. The superior mesenteric vein is more commonly involved than the inferior mesenteric, and, therefore the typical clinical picture is similar to that produced by occlusion of the mesenteric arteries, viz: sudden, intense, colicky, not localized abdominal pain, tender and tympanitic abdomen, vomiting, obstipation or bloody diarrhea, and rapid collapse. The symptoms in more chronic types of superior mesenteric vein thromboses may be less intense or even absent.

A case of portal vein thrombosis is reported because the clinical manifestations were unusual due to extensive infarctions in the greater omentum. A study of recent literature and review of the subject of portal thrombosis reveals no reference to a case with similar clinical features and pathological findings.

*Case Report:* A. S., a white man 54 years old, was admitted to St. Joseph Hospital September 10, 1932, complaining of abdominal pain and anorexia. He was in good health until two weeks before admission when he suddenly developed diffuse epigastric pain and nausea which subsided in an hour. The following evening pain recurred and there was some vomiting. He continued to work on his farm for four days before the severity of pain and weakness compelled him to go to

bed. At the time of admission there was constant pain in the left upper abdominal quadrant. Neither food intake nor defecation influenced the severity of the pain.

Examination revealed a well nourished middle aged man with a temperature of 100.2 degrees, pulse 84, respiration rate 24, blood pressure 132 systolic and 82 diastolic. There were no significant findings of the head, neck, chest or extremities. A large tender mass was easily palpated in the left side of the abdomen. It extended from the crest of the ilium to the costal margin and anteriorly to the umbilicus. Rectal examination was negative.

The blood examination revealed negative Kahn, 10,400 leukocytes, 85% polymorphonuclears, 85% hemoglobin, 4,200,000 erythrocytes. The urine was negative. Feces contained no blood. Fluoroscopic examination of the colon after a barium enema revealed scattered diverticula.

A presumptive clinical diagnosis of peritoneal abscess secondary to diverticulitis prompted an exploratory laparotomy, which was performed by Dr. David Fitzgerald, through a left rectus incision. A greatly thickened omentum was immediately encountered. The lower end was free but the edge was very rigid and rounded. Along the edge and scattered over the anterior surface were sharply circumscribed purple patches separated by reddish yellow fatty tissue. A careful and thorough exploration of the peritoneal cavity revealed smooth shiny peritoneum everywhere and no evidence of pathology in the viscera.

A portion of the omentum removed for microscopic study revealed thrombi in practically all veins. Early organization had taken place in many of the vessels. There were extensive necrotic areas, adjacent to the blood vessels, infiltrated with erythrocytes and polymorphonuclear leukocytes.

After the operation there was a gradual increase in fever, vomiting became more persistent, abdominal distention developed and death occurred nine days after operation.

A necropsy was performed two hours after death. Upon opening the peritoneal cavity at the site of the laparotomy an abscess was encountered between the small intestines and the abdominal wall. A generalized fibrino-purulent peritonitis was also present. The small intestines were markedly distended, the colon was collapsed. The common mesentery was very thick (4 cm.), fatty, and edematous. The veins of the mesentery were occluded by purple thrombi. The lesser omental sac was free. There were no changes of the stomach, appendix or gall bladder. There was a small area of hemorrhagic infarction involving the fatty tissue around the right kidney. The spleen was small and soft. It weighed 170 gm. The splenic vein was occluded by a soft purple thrombus. The liver was small, weighing about 1100 gm. The portal vein, its intrahepatic radicles, the superior mesenteric vein and its branches, and the splenic vein were also occluded. There were no ulcerations or infarcted areas in the intestines or spleen. Other findings were fibrous perihepatitis and perisplenitis, parenchymatous changes of the myocardium and kidneys, slight arteriosclerotic changes of the



aorta, and healed tuberculosis of the apices of both lungs.

Microscopic examination of the liver revealed brown atrophy, fatty infiltration, and thrombotic occlusion of the smaller portal radicles with beginning organization.

*Summary:* Hemorrhagic infarction of the omentum, secondary to portal vein thrombosis produced an unusual and obscure clinical picture which resembled an abdominal tumor or abscess.

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## SEXUAL NEUROSIS IN MEN: ETIOLOGY AND HYGIENE

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The majority of men with functional disorders of sex are neurasthenics, who, in addition to the symptoms of general neurasthenia, present some definite sexual syndrome. Our present concept of the origin of the disease entity of sexual neurasthenia is still not definitely established. A purely psychogenic origin of sexual neurasthenia has been advanced by some modern psychiatrists, who regard it in the same light as neurasthenia in general; namely, as a functional nervous disorder, not dependent on organic disease of any kind, constituting one of the disease groups of the so-called fatigue neuroses. Krafft-Ebing, in his celebrated book, *Psychopathia-Sexualis*, considers it a true psychoneurosis, one independent of any visceral disease and an outgrowth of inherent neuropathy. As it is now generally known, Freud and his disciples regard all the neuroses as sexual neuroses. They find that the most important etiologic factor in the development of neuroses is some disturbance of the individual's psycho-sexual sphere. With a normal sexual life, they say, a neurosis is impossible. They believe, therefore, that sexual neurasthenia is an actual neurosis, which is invariably a sequel of some disturbance in the sufferer's sexual life.

Other advanced thinkers, however, believe that no strict line of demarcation can be made between organic and functional aspects of this disease; that every purely functional disease has an organic basis, the latter at times being too faint to be recognized by the microscope or by

chemical reaction. The majority of modern urologists, fortified by new diagnostic armamentaria, maintain that a purely psychogenic origin in sexual neurasthenia is rare; that there is almost always some functional derangement in the sexual apparatus, behind which lies a variable degree of organic changes. "There can be little doubt," says McDonagh<sup>1</sup>, "that there is a lesion somewhere which we are not advanced enough to detect, but the fact that it is hidden does not warrant us to assume that there is nothing wrong." Wolbarst<sup>2</sup>, in a recent urethro-cystoscopic study of 300 cases of impotence in men, reports that forty-four per cent of his patients gave a history of gonorrheal infections, usually involving the adnexa, and eighty-three per cent had some demonstrable pathologic lesions in the urogenital tract. Some of the lesions recorded were an involvement of verumontanum, such as simple congestion, erosions, granulations, polypi, excrescences, hypertrophy, swelling, distortions, etc.; erosions and trabeculations of urethral floor posterior to the veru; an involvement of the vesical neck, trigone, etc. Without exception, in all these cases, regardless of the history of previous gonorrheal infection there was some chronic vesiculitis with a low grade of chronic prostatitis present.

At times it may appear incredible, that a slight, scarcely perceptible lesion or hyperemia in the deep urethra is capable of producing so great an irritation as to bring forth all the mental and somatic disturbances often presented by sexual neurasthenics. But, as Huhner<sup>3</sup> aptly remarks, some insignificant lesion detected through the examining cystoscope may be the very cause of most profound reflex symptoms of sexual neurosis. I recently treated two cases of chronic refractory headaches which had resisted all forms of local and general therapy, that yielded to the treatment of existing genital lesion—in one case a small papilloma of veru montanum and in the other, slight granulations at the base of the colliculus seminalis. "As a result of these apparently insignificant pathologic lesions," says Huhner, "the cerebrospinal sexual center is being continuously bombarded with impulses from these parts, with the resultant irritability and complete exhaustion of the center." Beard,<sup>4</sup> a pioneer neurologist, claims that "next to the stomach, the prostatic urethra is the most im-

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portant center of reflex irritation of the body. There is every reason physiologically and anatomically why this should be so, and a close study of symptoms of nervous debility proves it to be so. A morbid state of prostate is both an effect and cause of nervous exhaustion, for it is impossible to have an irritable prostate and yet be in good health in other respects."

Generally speaking, however, pathologic findings do not necessarily imply clinical phenomena and, therefore, organic criteria may exist without causing any symptoms of sexual inadequacy. We know that there is a neurasthenic type of an individual who, with some slight pathologic findings, is quite different from the average patient with the same disease. His emotional disturbances are so out of proportion to his physical disorder that his neurasthenic condition should be dealt with on its own account. If we narrow our vision to the physical side only, and disregard the intellectual and emotional sides of our patients, we shall fail. Therefore, in the treatment of sexual neurasthenia, whether its origin is in a psychogenic disturbance, urogenital pathology or endocrine dysfunction, we must deal with the entire man, the entire complex of his mental and physical equipment, not merely with his sex organs.

In my experience, the hygiene of sexual neurosis should be primarily psychic and, secondarily, somatic. I purposely assign the first place to mental hygiene, because mental states of these patients, without exception, are predominantly affected. Physicians who are dealing with male aberrations of sex are usually aware of pronounced depression and deep suffering on the part of these patients, in the melancholy contemplation of their deprivation and inability to participate in the normal *joie de vivre*. There are many patients, thus afflicted, who refuse or are unable to think of anything but their sexual disabilities. This obsession, at times assuming a monomania, not infrequently leads to a state of anxiety neurosis or even to the tragic denouement of suicide. Generally, the patients with neurotic diathesis tend to develop inferiority complexes, which they invariably project to the sexual sphere. This feeling of inferiority may arise, conversely, from a single ineffectual attempt to perform the sex act or from a series of oft-repeated sexual frustrations.

"Persons of introspective natures," says Hugh Young,<sup>5</sup> "may become impotent, the trouble dating from a single instance of failure, due usually to 1. premature ejaculation following exceptional sexual excitement, 2. failure of erection following too prolonged excitement and, 3. failure of erection or ejaculation, or both, following alcoholic intoxication, fatigue, worry or preoccupation." This may lead to the fixation of the inferiority complex which often is associated in such cases with a development of all sorts of bizarre ideas: for instance, the conviction that their genitalia are too small, too cold, insensible to touch; their semen is too scanty or too thin; that their libido and voluptas are absent; or they indulge in constant worry over the effect of *abusus sexualis*, *ex coitu* or *ex manu*, imaginary or real, or over the results of venereal diseases.

In many instances, I believe, such fear fixations may be readily cured by proper advice, while unskilled medical advice tends to exaggerate this condition, leading at times to dire consequences. Sympathetic and rational attitude on the part of a physician will help to support the psyche of these patients, by reassuring them of a prompt cure and of an ultimate recovery. All too frequently, however, physicians take this problem too lightly, subjecting their patients, altogether to too much careless joking, thereby increasing chagrin and embarrassment of the latter. But we should be cautious not to overdo the matter by dwelling upon the subject and exaggerating its seriousness, thereby increasing the patient's apprehension. To still further alarm them is a mistaken policy often fraught with danger of permanently fixing their sexual neuroses.

It is important for us at all times to be solicitous that the pride of the patient, deeply wounded by previous sexual fiascos, does not suffer any new and added defeats. We should try to do this before the habit of sexual failure has been established. Thus, for instance, dealing with the cases of psychic impotence of the newly wed, or with transitory loss of potentia occurring during the first period of wedded life, as a result of the exhaustion of sexual center from excessive stimulation, we should counsel sexual quiescence and temporary continence. Fortified by our advice, the patient assumes his right to sleep peacefully instead of engaging in repeated and futile attempts



at coitus, done from a sense of conjugal duty. An intelligent wife, as a rule, when appraised authoritatively of the nature of her spouse's disabilities, will prove cooperative and not be unduly alarmed by his failures.

Such brief continence will exclude from the psyche of the patient the brakes that interfere with his proper performance of the sexual act. On the other hand, if the patient, while under the influence of an intense sexual emotion, forgets everything including our injunction and essays a successful coitus, then the success of *le fait accompli* may be ascribed to the retroactive effect of our advice. Hammond<sup>6</sup> has been successful in giving such a patient some harmless pills, with instruction that he may sleep with his wife but under no circumstances to indulge in coitus, until all the pills have been taken. Very often the patient will break the rules, finding himself perfectly *compos copulationis*.

It is obvious that sexual neurasthenics should be guarded against all forms of sexual excitement not leading to coitus (*irritatio frustrana*); likewise, against any unphysiologic attempts and methods of performing the sex act. The injuries that come from the unnatural forms of coitus are functional rather than organic in character, and may be practiced by some individuals for years with an apparent impunity, but in the case of the sensitive, the nervous and the weak, injury of demonstrable character will usually result if the habit is long continued. It may be asserted, therefore, that the more sensitive the nervous organization of the patient, the earlier and the more severely will he suffer.

Manifestly, the neurasthenics should avoid sexual excesses, natural or artificial. It would appear that individuals with impaired sexual functions were incapable of engaging in *excessus veneris*, but only too frequently we find a patient suffering, for instance, from premature ejaculations (*ejaculatio praecox*) persistently indulges in repeated sexual acts and, paradoxically, the succeeding attempts often proving more satisfactory.

It is almost axiomatic to assert that sex and its capacities are fundamentally individual and vary widely within normal limits. As Stekel states, as far as sex is concerned, we must emancipate ourselves once for all from the canons of normality; for there is no such a thing as nor-

mality in sex. A comprehensive question, therefore, as to when the sexual activity becomes pathogenic for an individual, cannot be answered categorically. "In this," says Freud, "we have to give due weight to the influence of quantitative factors and the co-operation of a number of pathogenic influences and, above all, we have to assign a great rôle to the so-called constitutional disposition of the individual."<sup>7</sup> But, alas, we have no available means of gauging this disposition beforehand. Only a study of the total function of the individual, his mental and physical reactions, his detailed sex habits and experiences, provides us with a reasonably accurate means of determining the extent of his natural limitation. (Wolbarst). Empirically, we may say, that sexual activity is pathogenic for an individual when it is practiced with effort and is followed by fatigue and exhaustion.

As a rule, a neurasthenic endures normal coitus badly. Whereas, in a normal person sexual intercourse induces no disturbance—to the contrary, after it he usually feels, to quote Sturgis, like a "*gallus qui cautat*,"—in the neurasthenic, psychic and physical reactions of varying duration and intensity often supervene. I regard the phrase, "one day neurasthenic," coined by Ferenczi an extremely apt one. My observation has been, that the dominant complaint of sexual neurasthenics, namely, of premature ejaculations, which is frequently accompanied by the lamentations of their wives as to the growing frigidity of their consorts, is often due to the lessened libido or dissatisfaction with the coitus and unconscious attempt on the part of the latter, to get through with it as quickly as possible. In other words, they take refuge from unconscious sexual conflict by establishing psychic impotence and frigidity.

This inadequacy of sexual acts almost invariably leads to protean somatic manifestations, such as headaches, spinal irritation, dyspepsia, flatulence, gastralgia, constipation, cardiac symptoms (as the well known "masturbator's heart"), etc. In fact, gastro-intestinal symptoms may dominate the picture of sexual neurosis to such an extent that they often masquerade as an independent disease. Chronically congested genitalia being jointly innervated through the sympathetic system with the lower bowel, frequently gives rise to the spasm of the anal sphincters,



thus producing spastic constipation. Chronic constipation and straining incident to the act of defecation, result in increased hyperemia of the pelvic adnexa, and clinically manifest in frequently occurring spermatorrhea, prostatorrhea, and nocturnal or diurnal emissions.

In mild cases, these involuntary seminal emissions accompany only marked straining efforts or the passage of hard fecal matter, whereas in more severe cases they may occur with every act of defecation or even follow a simple act of urination, sneezing, coughing, etc. Spermatorrhea defecationis, as a rule, is of little pathologic significance, though in psychoneurotic individuals it may engender apprehension of anxiety neurosis, with dominant fear of impending "loss of manhood." In hypochondriacs spermatorrhea becomes a bugaboo which often makes them the dupes of charlatans. It is especially prone to occur in unmarried men, who are sexually continent, sedentary in habits, with oft-repeated ungratified sexual desires or unrelieved erotic fancies; in short, in individuals who are perpetually in a state of erethism or, as Marrow calls it, "mental masturbation." It is among this large group that we find the men who practice that "unchaste continence which revels in the paraphernalia of indecency, lewd books, tales and thoughts, while seeking to hide beneath the cloak of physical propriety" (Keyes). Though clinical observations warn us not to stress harmfulness of spermatorrhea, yet, unquestionably, in cases of neurosis we encounter instances in which it has done harm. In my experience, I find it is impossible to exclude a permanent diminution of sexual potency from the consequences of excessive nocturnal emissions (or masturbation), although Freud says, "in many instances the loss of potency is merely apparent." However, a singular part of spermatorrhea is that regular sexual intercourse, as a rule, affords the best means for its relief; though such patients are at first more or less impotent when an intercourse eventually is attempted. Matrimony may intervene to save the day, but it should not be prescribed like a pill.

The hygiene of sexual neurasthenia should include proper dietary regimen, for, as previously stated, digestive disturbances in the nature of atonic indigestion, spastic constipation, etc., are quite constant. The diet should be nutritious,

rich in vitamins, especially the Vitamin E, which, as believed by some recent investigators, acts specifically on fertility and sterility (Evans, Burr, Bishop, Sure et al). When general stimulation is desired, I recommend a diet also rich in sugars, firstly, on account of its high nutritive value; secondly, for its empirically proven aphrodisiac action and, thirdly, for increased feeling of well-being which high caloric diet of sugars generally imparts. Tea, coffee, eggs, mushrooms, oysters, etc., are sexual stimulants and are beneficial, when indicated. We must exclude, however, all indigestible and irritating foods and drinks, especially alcohol. It is well known that in men, alcohol in small doses stimulates the desire without affecting the potentia; indeed, it rather increases it by removing mental inhibitions, thus accentuating their sense of manhood and flattering their "masculinity complex." The old Roman proverb, "sine Cere et Baccho friget Venus," is true within certain limitations, says Sturgis, "but beyond this neither Bacchus nor Ceres can save Venus from being chilled; for the chronic alcoholic is deprived not only of the power of erection, but he loses even the libido"<sup>8</sup>. In the words of Macbeth, "it provokes the desire, but it takes away the performance."

As I have stated, the primary indication of hygiene in sexual neurosis are quiescence, stability and avoidance of all sterile sexual provocations, both physical and psychic. But this may not be enough. It is important at times to introduce into the lives of these patients some new, positive factors, which will transmute their sexual energy into other, non-sexual channels, thus utilizing the surplus of the sex-instinct in substitute activities. Freud has designated this transference as sublimation or transvaluation. He contends that the process of sublimation tends to marked acceleration of all the mental and spiritual faculties and is capable of elevating them to new heights. It is primarily achieved through increased mental efforts of all sorts, by vigorous self-discipline, strengthening of will power, etc. Practically, this state is reached by intensive application to some new or old fields of endeavor, whether it be intellectual, religious, social or civic in character. The greater the force with which it takes hold of an individual, the better are the results. Increased physical activities, especially vigorous outdoor life, the cultiva-

tion of new sports and hobbies, acquisition of new friends, etc.—all this may prove extremely beneficial.

The constitution of some sexual neurasthenics seems to be peculiarly adapted to the "civilized" sublimation of the sexual instinct. However, this deflecting of the sex instinct from its natural aim and towards loftier cultural pursuits may succeed only in some cases, and at that, only temporarily. Experience teaches us that for the majority of men there is a limit beyond which their constitution cannot comply any more with the cultural demands, and any further attempts at sexual repression will usually provoke manifestations of what we designate nervousness or more especially, psychoneurosis. This process, says Freud, cannot be carried on *ad infinitum* any more than the mechanical transformation of heat into energy. The majority of human organisms seem to require a certain amount of direct sexual gratification, and the lack of this gratification, the amount of which varies with every individual, will bring forth manifestations which we must consider as pathologic. The more one is predisposed to neurosis, the less one can endure abstinence.

The sexual impulse is a force, to some extent an incalculable force, and the struggle of man to direct that force, when he and it are both constantly readjusting to inner and outer changes in the environment, is inevitably attended with difficulties of the kind we have dealt with.

Where definite local disease is present and the sexual symptoms are not disproportionate, local treatment should be at once instituted, according to the existing indications. We usually find in these cases that with the restoration of the patient's physical health, his mental state improves *pari passu*.

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#### DISCUSSION

Dr. L. L. Veseen: One point that Dr. Beilin brought out is particularly stimulating, namely, that we have had a tendency in the past to instrument these patients too much, to look for a congested verumontanum and to treat it with silver nitrate applications, whereas the congested verumontanum may not be the cause of the condition but the result; rather a symptom than a factor in etiology. I found in a few cases I have had in close cooperation with the psychiatrist that his treatment has benefited the patients a great deal more than topical applications to the verumontanum.

Dr. H. C. Rolnick: I want to congratulate Dr. Beilin on his presentation. He has presented the best discussion of the subject I have ever heard.

I do not agree either with Wolbarst or Huhner that congestion around the verumontanum is necessarily an etiological factor in these types of sexual disorders and various types of impotency. We are still far away from any therapeutic means of handling these conditions because we do not know the physiology of erection nor of ordinary potency. In spermatorrhea I think we have a definite etiological factor. We have some degree of prostatovesiculitis that is definitely known to cause spermatorrhea.

Dr. Thomas F. Finegan: I believe sexual abuses, coitus interruptus and masturbation are more important than the gonococcus in producing this condition. Attention to the vesicle, where there is a large atonic vesicle, by spraying and hot irrigations may help to clear up this condition. It seems to me the history of infection, especially gonorrheal, has been over-emphasized.

Dr. Leon M. Beilin (closing): It was not my intention to make you all psychiatrists instead of urologists. I wanted to emphasize the importance of the psychiatric side of this question. I think the psychic basis of impotency is by far the most important. While Max Huhner admits that in most cases gonorrhea may be the background, I think most writers think infection *per se* is not an important factor. As Dr. Finegan said, coitus interruptus may be a contributing factor. Only a neurotic type of individual reacts unfavorably to all of these sexual malpractices, while a normal individual can carry on these practices without ill effect. The more abnormal the sexual life in a neurotic individual, the more neurotic he becomes. This condition is associated with a neurotic diathesis more frequently than with a pathologic condition of the sexual apparatus.

#### SOME REMARKS CONCERNING CEPHALOPELVIC DISPROPORTION

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Of the many causes of difficult labor perhaps the most frequent and important is disproportion

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between the size of the fetus and that of the maternal pelvis. To undertake the care of a woman during labor without making the most careful efforts to determine whether and to what degree disproportion may be present is to invite, through acts of omission or commission, the occurrence of any variety of accidents possible of affecting either mother or fetus. Many needless operative procedures, particularly unnecessary Cesarean sections, with their associated effect on maternal and fetal morbidity and mortality, attend the treatment of patients in whom, without examination, disproportion is incorrectly assumed to be present. Contrarywise, efforts to effect delivery through the natural passages in the presence of an unrecognized disproportion may prove impossible without a destructive operation upon the child. Even if possible, the results in terms of injuries to the mother and fetus and in the development of postpartum complications such as hemorrhage and infection are too well known to be further commented upon. Certainty of the absence of disproportion assures us that artificial delivery may be effected from below if we find it necessary or advisable to do so, provided certain other criteria are met. Similarly, recognition of its presence and its approximate degree, combined with the knowledge of possible and probable consequences, permits of proper interpretation of the course of labor and of the formulation of appropriate plans of treatment.

Disproportion may occur at the pelvic inlet or at the pelvic outlet and may be absolute or relative. The only justification for the use of the term *relative* or *borderline* lies in our inability to arrive at an exact evaluation of the fetal factor. Although disproportion is more frequently manifest at the pelvic inlet, yet an unrecognized and absolute disproportion occurring at the outlet is far more serious. This is due to the fact that it does not become manifest until the head has descended to such a depth and labor has been so long in progress that delivery by Cesarean section is not only difficult but extremely dangerous. For these reasons many consider it preferable to terminate such an unfortunate case by delivery following craniotomy. The hazards and difficulties attending an unrecognized, insurmountable disproportion, whether of the inlet or outlet, are increased if in addition we are dealing with a breech rather than a vertex presenta-

tion. In such cases the obstruction will not be manifest until the child has been delivered up to the approximate level of the shoulders; replacement is impossible; the child invariably dies; and efforts at subsequent completion of the delivery are compromised by the fact that access to the head is obstructed by the presence of the child's chest at the vaginal entrance.

The diagnosis of disproportion must be based chiefly upon an examination of the actual relationship between the fetus and maternal pelvis as well as upon careful estimates of the size of both these factors considered individually. A history of a previous uneventful labor is of little value since there may be very considerable differences in the size of children born of different pregnancies. A history of previous difficulty may be equally deceptive since it may have been due to some cause other than disproportion.

Among methods employed to study the interrelationship between fetus and pelvis the following may be mentioned: 1. Mueller's procedure which consists of an attempt to determine by rectal or vaginal examination whether the presenting fetal head can be made to enter the pelvis by reason of manual pressure exerted upon it through the abdominal wall; 2. Hofmeier's procedure which is very similar to that just described; and 3. Hillis' procedure which differs only in that downward pressure is made upon the fundus of the uterus, being transmitted to the fetal head through the axis of its body. In this connection it must be stated that the exertion of such an amount of pressure upon the uterine fundus as is required in this procedure is not to be commended. All of these procedures represent an attempt to determine whether the fetal head can be forced into the pelvis by means of pressure exerted from above. They may give negative results merely by reason of the restraining action of the lower uterine segment before cervical dilatation and retraction have begun or by reason of the placenta being situated low in the uterus. None of them make full allowance for the molding which may occur as the result of labor itself. They are applicable only to vertex presentations in relation with the pelvic inlet, and their results should be considered conclusive only if positive.

Comparisons based on independent appraisals of the size of the fetus and that of the pelvis provide an equally satisfactory approach to the study



of disproportion and one possible of utilization in reference to the pelvic outlet as well as inlet regardless of the type of presentation.

Numerous means, mechanical and roentgenometric, have been devised for measuring the fetal head in utero, and while the originators of these schemes are unfailingly enthusiastic, it is impossible to share that enthusiasm from a practical standpoint for the simple reason that none of them yields any information relative to the hardness of the fetal cranium or to the degree of mobility along the suture lines. Under the circumstances we are again unable to predict the amount of molding a head of any given size may undergo in an effort to accommodate itself to the maternal pelvis. General estimates of the size of the fetus as a whole, will, therefore, give us equally useful, if not less misleading, information concerning the fetal factor. The Ahlfeld and McDonald measurements have been devised with this end in view. The former comprises a method of measuring the length of the fetus, while the latter consists merely of measurement of the distance between the symphysis pubis and the upper extremity of the uterine fundus. It is by a comparison of the measurements so obtained with the average normal prevailing at term that impressions of fetal size are supposed to be obtained. As a matter of fact, the Ahlfeld and McDonald measurements show such marked variations depending upon the type of presentation, the parity of the patient, and the amount of amniotic fluid that almost anyone will admit that the experience gained by the examination and subsequent delivery of even a comparatively small number of patients will permit of better estimates of the size of the fetus than any other method at our disposal. This experience combined with adequate measurement of the pelvis furnishes us with the most reliable means of ascertaining the probable occurrence of disproportion and of estimating its degree.

Pelvimetry itself may now be termed an exact science inasmuch as the comparatively recent application of the x-ray to pelvic diagnosis has done away with the deficiencies of other methods commonly employed for this purpose. While it is still proper to speak of borderline disproportion since we can not positively evaluate the fetal factor, it is incorrect to speak of borderline pelvic contraction. For practical purposes it is neces-

sary to inquire only into the size of the pelvic inlet and outlet in order to obtain an accurate impression of the size of the pelvis from the obstetrical viewpoint since the pelvic canal is narrower in these zones than elsewhere. Strictly speaking, the narrowest diameter of the lower part of the pelvic canal is that between the ischial spines. It is, however, located so close to the ischial tuberosities that its length varies rather directly with that of the latter and may by implication be safely inferred therefrom.

Measurement of the pelvic outlet involves no difficulties whatever, since all the bony landmarks by which it is defined and which mark the terminations of its various diameters are accessible to direct palpation. These diameters can, therefore, be measured easily by any suitable pelvimeter of which, however, the one devised by Thoms is the most satisfactory. Although recognition is given to the fact that it is impossible to describe the size of any irregular passageway in terms of only one diameter, yet it suffices our purpose of estimating the obstetrical capacity of the outlet to begin with the measurement of the transverse or so-called bituberous diameter. If the measurement so obtained approximates the normal of eleven centimeters, we can be assured, in the absence of some obvious deformity of the sacrum and coccyx, that there is sufficient room for the passage of even a very large child. The anteroposterior diameter is of slight practical value for the reason that when the transverse diameter is shortened, the pubic arch is at the same time so narrow that the fetal head cannot utilize the anterior limits of this space. The possibility of its birth will in such cases depend not upon the length of the anteroposterior diameter but rather upon the length of the transverse diameter taken together with the distance between it and the tip of the sacrum (or the coccyx if it is fixed). This latter distance is called the posterior sagittal diameter and should be measured whenever the transverse diameter is shortened. When the sum total length of both these diameters is less than 16 cms., it is extremely unlikely that an average-sized, full term, fetal head will be able to pass through the pelvic outlet. Here again it is evident that the estimated size of the fetus will play a big part in the formulation of our impressions of probable disproportion and consequently of our plan of management of labor.

In the case of the pelvic inlet unlike that of the outlet, we are for obvious reasons unable to employ a mechanical pelvimeter for the measurement of any of its diameters. We attempt to obtain our impressions of its width through measurement of the interspinous and intercrestic diameters of the ileum. These are, however, external measurements of the false pelvis occupying a much higher plane than that of the pelvic inlet, and consequently show extreme variations dependent solely upon the slant of the iliac bones and upon their thickness and that of the overlying tissue. They may provide information as to the type of contraction, whether due to disease or developmental deficiency, but they never accurately portray its degree. Estimates of the anteroposterior diameter are obtained by subtracting  $1\frac{1}{2}$  to 2 cms. from the length of the distance between the under surface of the symphysis pubis and the sacral promontory as determined by internal digital measurement. Although obtained by computation and thus subject to error, this measurement is in itself quite reliable as proven by comparison with similar measurements made by x-ray. When the computed true conjugate has a normal length of 11 cms., we have every reason to believe that in the absence of some obvious deformity due to disease the inlet as a whole is of normal size. When, however, it is shortened, it is advisable also to know something about the width of the inlet in order to judge of its capacity. This is possible only by those forms of x-ray pelvimetry which furnish us with a graphic geometric picture of the entire inlet since they alone enable us to measure any and all of the many diameters that extend transversely from one side to the other<sup>1</sup>. In cases of pelvic contraction we are interested not in length of the greatest transverse diameter, because it lies too close to the sacral promontory to be utilized by the fetal head, but rather in the greatest available transverse diameter. It is our opinion that this is located 4 cms. anterior to the promontory for reasons outlined in a paper published in 1932.<sup>2</sup> At the same time we stated our belief that the length of this diameter plus that of the anteroposterior diameter must equal at least  $19\frac{1}{2}$  cms. in order to make possible the passage of a normal fetus. If x-ray pelvimetry is not available, it is better to base one's impressions of the size of the inlet on the length of its

anteroposterior diameter alone rather than upon any external measurements which may be taken. In this connection it may be well to mention the fact that it is impossible to diagnose disproportion by means of a simple flat x-ray picture of the head at the pelvic inlet. Efforts to determine in this manner whether the shadow cast by the head is larger or smaller than the space provided by the pelvic inlet can only lead to erroneous conclusions since the head being nearer the point of origin of the rays will inevitably cast a bigger comparative shadow than it would if it lay in the plane of the inlet itself.

Summary: The significance of cephalopelvic disproportion from the standpoint of both mother and fetus has been mentioned, and the importance of its early recognition has been emphasized. A diagnosis of its approximate degree, if present, may always be made at term and before the actual onset of labor although an absolute diagnosis of so-called borderline disproportion may be impossible without a carefully observed and carefully conducted test of labor. This is due to the fact that we cannot arrive at an exact evaluation of such factors as the size of the fetus and the moldability or compressibility of its head. Every possible means should be employed which may be useful in making a diagnosis, but of these a comparative study based upon careful estimates of the size of both fetus and pelvis is of most universal application.

Pelvimetry can be rendered simple and intelligible if we remember that the index of the size of the outlet is furnished by its transverse diameter while that of the inlet is afforded by its anteroposterior or so-called true conjugate diameter. Only when the transverse diameter of the outlet is shortened by more than 2 cms. will it generally be necessary to make one additional measurement, namely, that of the posterior sagittal diameter. Similarly, it is advisable to measure the available transverse diameter of the inlet if its anteroposterior diameter measures less than 10 cms. This, however, can be done only by x-ray, and if this not at hand, it is better to rely solely upon the length of the true conjugate than upon the more fallible external measurements in forming our opinion of inlet capacity.

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## PROBLEMS IN THE DIAGNOSIS AND MANAGEMENT OF PULMONARY TUBERCULOSIS

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The diagnosis of frank open pulmonary tuberculosis is obviously simple. The only necessity is to think of the condition and the diagnosis will establish itself. In the latent, incipient, or atypical manifestation the diagnosis becomes more difficult and regardless of one's experience one must resort to added measures to the routine physical examination to confirm or deny the diagnosis. Further, the diagnosis of pathology does not necessarily signify activity and it is undoubtedly these cases of evidence of tuberculosis in the lung which, when associated with other disease processes, frequently give us our most difficult problems. It is these cases which necessitate additional and expensive laboratory examinations which frequently pass from the general practitioner to the specialist; not because of incompetence on the part of the attending physician, but because of the general unwillingness on the part of the patient to undergo the additional expense under the direction of his own physician.

Undoubtedly, these questionable cases require a great deal of time on the part of the attending physician; history taking, with the proper evaluation of the information given, is important. A history of contact with a case of tuberculosis, particularly during the period of adolescence, is suggestive, as is a history of a marked preponderance of respiratory infections or such systemic infections associated with respiratory pathology as whooping cough, measles, influenza. Evidence of cervical adenitis involving the whole chain of glands or the presence of skin tuberculosis in one of its many forms, a long standing arthritic syndrome, all these are of importance in completing the final picture. Minor findings which may be overlooked in obvious cases assume importance in our borderline cases, as asymmetry in the chest configuration and mobility, presence of Pottinger's sign of muscular spasm, infra- and supra-clavicular retractions, or minor changes in the percussion note not explained on anatomical

differences. Those early auscultatory findings such as fine crackling rales at the end of inspiration or a prolongation of the expiratory phase or the tone changes in the expiratory phase are well known. What frequently is overlooked in auscultation is the diminution or absence of the normal.

A careful physical examination with recognition of the above minor changes and association with such extra-pulmonary findings as the anterior—posterior curving of the fingernail, a slight cyanosis of the fingernail, atrophy of the inter-ossei muscles of the hand, atrophy of the muscles of the wrist and lower forearm, add to the picture suggesting pulmonary pathology. These latter findings are by no means restricted to tuberculosis, but merely indicate some circulatory and probably nutritional interference due to thoracic disease. When these are present and associated with a history of clinical course suggestive of tuberculosis, we may consider them as positive findings towards establishing our diagnosis of pulmonary tuberculosis.

The early clinical course or history is frequently misleading if we still maintain the early conceptions that cough is our earliest and most significant symptom. Even in extensive cases cough may be entirely absent due to the localization of the pathology. Our earliest symptomatology is that of toxicity—languor and fatigue, loss of appetite, a loss in weight and in strength and a general feeling of ill-being. Sooner or later the patient has a flushed or feverish feeling which often precedes an actual rise of temperature as recorded by the thermometer. However, quite early we find a disturbance in the normal temperature and one must remember that the important element in the temperature curve is not alone the actual rise above our accepted normal but the variation from minimum to maximum. The cough, when present, is at first not productive, but a dry characteristically hacking cough. Due, the patient says, to a dryness in the throat. and, if he is a smoker, he attributes it entirely to his smoking. As the cough becomes productive, generally the early sputum is thin and glary and only later becomes purulent, due to the presence of a mixed infection. The isolation of the tubercle bacillus is of course diagnostic, but in these early cases one often cannot isolate the organism on simple, direct smears. Of value in

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finding the organism is a careful stain prepared by the antiformin method and a sputum should not be considered negative until at least three smears so prepared have been examined from the sputum obtained on successive days. Occasionally Much's granules, which are considered to be deteriorating or degenerating bacilli, may be found when the actual organism cannot.

When, having completed a careful history, physical examination, study of the clinical course and sputum examination, we do not arrive at a definite diagnosis, other measures must be resorted to and in this respect I consider a careful roentgenological study of prime importance. In fact, where the economic situation permits, I include this study in the routine initial examination. A good study not only reveals gross changes but reveals early and minute changes, which, because of their location, possibly would not be found on a physical examination. Further, this study may be done in conjunction with the tuberculin test where changes occurring at the peak of reaction can be demonstrated in the films when compared with films taken prior to the test. I consider this study of such great importance that I suggest a standardization of technique so that films taken in a given institution or clinic will reveal a uniformity which is of decided value in making comparisons from month to month, or year to year, in any given case. In this study at the Augustana Hospital, Chicago, we observe the following routine:

It is important that the patient be entirely disrobed from the chest down to the waist, so that no artefacts from wearing apparel are superimposed on the roentgenograms.

Examinations of the chest are taken stereoscopically in the P. A. view and roentgenograms are also made in the true lateral views. It is important in taking roentgenograms of the chest that the patient be as quiet and as passive as possible as excitement oftentimes interferes with the quality of the roentgenograms. The patient is instructed to take a comfortably deep breath and hold the breath subsequent to elevating the thoracic cage. Then, after an interval of a few seconds, the exposures are made. This management insures the best detail.

The following technic is customarily used in the average hospital for examinations of the

chest. However, the technic should be flexible depending upon the capacity of the equipment.,

100 M. A. of current—Distance from target of tube to film—40" for stereoscopic work. Kilovolts Peak (depending upon the thickness of the patient) 60 to 68. Time of exposure—1/10 to 2/10 seconds.

For lateral views—100 M. S. of current—Distance from target of tube to film—40". Kilovolts Peak (depending upon the thickness of the patient) 72 to 78. Time of exposure—5/10 to 1 second.

Many institutions take roentgenograms of the chest at six and seven feet distance. Technic for six foot distance—100 M. A. of current—(P. A. position)—Kilovolts Peak (depending upon the thickness of the patient) 68 to 75. Time of exposure—5/10 to 1 second.

Technic for children. P. A. position—100 M. A. of current—Kilovolts Peak 52-60. Time of exposure—1/20 to 1/10 second.

Having determined the presence of tuberculus pathology, we must next determine activity. We are guided there mainly by the clinical course and condition of the patient. However, there are times when the symptoms are so slight that we must recognize the possibility of their arising from some concomitant condition and that the tuberculous focus may be quiescent. Here, the Mantoux or intradermal method of administering the tuberculin is of most value. This consists of injecting intradermally varying dilutions and amounts of old tuberculin. The initial dose is one-tenth c. c. of a solution containing one-tenth m. g. of old tuberculin. This is gradually stepped up until the dose given is one m. g. The observation of the test itself includes a temperature check every two hours for forty-eight hours prior to the administration of the vaccine, and a similar check subsequently. The positive reaction to this test is of a three-fold nature: first, local, comprising an area of redness at the site of injection, which, when appearing alone, denotes only the presence of the infection; second, a general reaction consisting of elevation in temperature and a general aching, tired feeling; and, third, and most important, the focal reaction, consisting of an exaggeration or extension of the physical findings at the site of infection. In the lung these changes may be seen in the x-ray and these focal changes denote activity within the lesion. Blood changes are as yet only suggestive in the diagnosis, but of great aid in following the course of the condition and aiding in the prognosis. The initial blood-count in uncomplicated tuberculosis shows frequently a mild leucopenia

and a mild secondary anemia. The white count shows a relative decrease in polymorphs and a relative increase in lymphocytes. The Schilling index or the Arneth nuclear count are of most importance when compared with subsequent examinations. The sedimentation test is rapid in tuberculosis and when the rate of sedimentation is found to be increasing in successive examinations we find this rate corresponding with an increased rate of activity, clinically and pathologically.

Animals may be used when the above means and methods fail to reveal our diagnosis. The sputum is injected intraperitoneally, preferably in a guinea-pig which is killed at the end of six weeks should it be living at the end of this time. A very careful autopsy, with particular attention to glandular involvement with microscopic examination of such involved areas, should then be done.

We feel that if each one of us would follow through with every suspect case we could definitely prevent overlooking or misleading our patients, and there is nothing in this examination which is not practical and sufficiently simple but that it might be used in conjunction with any institution or group. In the differential diagnosis, which I will not attempt to take up in detail, I would mention, however, that probably the most common condition to give rise to the clinical picture of tuberculosis is sinusitis, or a simple posterior nasal drip. Also necessarily borne in mind is chronic bronchitis, or bronchiectasis, either one of which however may have a tuberculous etiology or may be present in one portion of the lung with active tuberculosis present elsewhere.

From the standpoint of the management of our tuberculous patients, we have always felt introduction of our patient to his diagnosis is the most important determining factor in our successful management of that patient. We have no compassion with any one who hides this diagnosis from his patient. That patient is essentially a human being who would probably cooperate with us during an acute disease with its subsequent short convalescent period, but he, like ourselves, will not observe the necessary care and precaution over a period of over six months, and occasionally many years, on a flimsy diagnosis of bronchial trouble. Instead, he should be duly im-

pressed with the fact that he has tuberculosis and herein we meet his level, using the terminology which we know he will understand, as often our patients have no conception of the meaning of the word tuberculosis, and even less commonly of phthisis. We, therefore, tell them, "You have the con, or T. B.," or "You are a lunger," or any other lay expression which will make him realize his condition. We mince no words. He must realize as we do that his condition is serious and as much as his well-being is in our hands, so our professional reputation is more or less in his hands, and we therefore have a right to demand complete cooperation, and, lacking this, to refuse him the benefit of our services.

Having established the diagnosis and presented it to the patient, we must determine a course which will be compatible with that individual's economical and personal condition. It is all very well to tell our patient that he should be in an air-conditioned, barometrically controlled, and ultra-violet equipped room, or ship him to a different climate, but how many patients do we meet who are even in a small measure financially able to do this? There is no question in any one's mind but that sanatorium care is, in the average case, the most desirable, be that sanatorium publicly maintained or private. With the present state of depleted personal and public finances, the family is too frequently unable to finance the private institutional care, and likewise the publicly maintained institutions are running on decreased budgets with an ever-increasing demand for their services. Necessarily, we must observe then a practically home management regime. In the home the two most important considerations are: first, that all minor contacts will be removed from the patient, and second, that the patient has his own comfortable bed in his own private room or sleeping-porch. If we can insure these two factors—prevention or spread of the infection and complete bed-rest for our patient, we will be observing both the fundamental public health requisite and the fundamental requisite for the improvement of our patient. We have always heard that the three essentials for the tuberculous individual are rest, good food and fresh air. They always have, and they always will be, in spite of any accessory means employed in the treatment of the patient. We can never attempt to dispense with any one



of these three. By far the most important is rest, and for that first month of the patient's incarceration we insist upon complete bed-rest, allowing only bathroom privileges in those cases where the temperature does not exceed 101. Meals should be served to the patient in bed. A definitely stated rest period, preferably from 1:00 to 3:00, should be observed through the entire course. All lights should be out and the patient quiet by 9:00 P. M. It is possibly an arbitrary point as to whether that patient should be awakened in the morning for his breakfast. In my opinion, sleep is so important that he should never be aroused from it. The diet should be general, wholesome, well-balanced in all the elements, and never precludes forcing. The patient should have three good meals, and if his appetite permits mid-meal feedings, by all means they should be given, but food should never be forced. Fresh air obviously is important to each and every one of us; whether that should be cold air or warm aid depends entirely upon the comfort of our patient. We do know that there are certain types who do better in cold than in warm, and likewise others who do better in warm than in cold, and herein we must realize we are dealing with an individual and not with a case. The patient is taught to take his own temperature and pulse, a record of which should be kept by the patient for periodic examination by the attending physician. Routinely the temperature is taken every four hours and one day a week every two hours. In keeping his chart he is also instructed to keep a simple, clinical diary so that when he is examined from time to time all questions concerning his condition will be a matter of record. This keeps the patient well satisfied and the physician well informed. He is instructed as to the use of paper napkins or other easily destroyed articles for the receiving of his sputum and for covering his mouth. It is practical for the patient to pin a paper bag at his bedside to receive these waste articles. His dishes should be isolated from those of the family and should be washed after the other dishes have been taken care of. In occasional instances, it may be desirable to use a disinfectant in the destruction of the stools or urine. Whether the patient should have medication or additional measures in the therapy depends upon the individual entirely.

We may or may not employ sun-baths, but only very rarely should these sun-baths include the chest exposure to the direct rays. If a sun-bath is considered advisable, we can usually have our patient receive all the benefits wherever he is by moving the cot in the open or to the open window and wearing a bathing suit. Should a pneumothorax be indicated, this can very simply be performed in the home without any great inconvenience on the part of the family or the physician. It is a simple, safe and frequently necessary proceeding and should never be kept from the patient simply because he cannot be hospitalized.

Practically all of this information is given to the patient as soon as the diagnosis is established. He is told that this regime must be followed for a long period of time, but he is then given the moral encouragement that he has been let in on 'the ground floor' and he is willing to cooperate as a partner in the deal.

We have purposely avoided any discussion as to the medicinal therapy employed. It is granted that this will vary widely, but this variation arises mainly from the attending physician's knowledge of his patient's psychic makeup. There are, after all, few drugs of definitely proven merit. We must employ, from time to time, a minimum dosage of a suitable sedative to allow the patient periods of freedom from cough. We are, however, unalterably opposed to any prolonged use of narcotics except in the very extreme terminal conditions. Cod-liver oil is probably one of the most widely used adjuncts, but with our present advance in the isolation of the vitamins A and D we can probably use these individual vitamins in conjunction with more palatable fats with equally good or even better clinical effects. For the past two years we have been using large amounts of calcium gluconate with the vitamins and have observed a definite difference in the rate of improvement or in the length of the initial check of the progress of the infection as compared with the previous experiences. We are not overlooking the fact that we may be observing a different type of organism than was previously found.

In conclusion, we merely hope to emphasize the importance of a complete and thorough examination of the patient and feel sure that if the investigation is conducted with observance of min-

ute details in conjunction with a complete laboratory examination, we will all arrive at the same conclusion. In the management of a patient we must learn not to be foolishly sentimental and attempt to spare the patient by withholding necessary information as to his condition. He will only suffer in the end and the physician will have lost his patient's confidence and possibly the patient himself.

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## RHINITIS WITH VINCENT'S ORGANISMS

C. H. LOCKWOOD, M. D.

CHICAGO

In a review of recent literature I find very few cases reported of Vincent's infection in the nose. The case here reported is the only one I have seen in over twenty-five years of practice. On inquiry I find many rhinologists who have never seen a case. In 1925 Pirot reported 2 cases<sup>1</sup>; in 1929 Hollander reported 3 cases following nasal operation;<sup>2</sup> in 1931 Ersner and Pressman reported a case following a tooth extraction;<sup>3</sup> in all these 6 cases, 2 of them died and 4 lived after arsenical treatment.

In view of the rarity of this infection in the nose I wish to report the following case. Male, single, aged 26 years, was seen in my office October 23, 1933, complaining of fetid purulent discharge from his left naris. This came on after having some left upper teeth extracted some 2 months before, when "dentist also treated his nose for an acute cold." I found left naris completely blocked by markedly swollen and edematous turbinates, especially the middle one. There was a profuse, very fetid, thick, purulent discharge from the left naris of a somewhat milky curdy consistency and appearance and with a very foul odor. His left eyelids were considerably swollen and edematous.

On shrinking the turbinates with cocain and adrenalin it was seen that this purulent material covered all the left nasal mucosa and seemed to reform about as fast as it could be wiped away; the mucosa of the turbinates bled easily on slightest manipulation. Transillumination showed the left antrum to be definitely dark. X-ray of sinuses showed left antrum cloudy. His blood Wassermann test showed negative. A smear and culture from his nose revealed, no diphtheria, and no streptococci, but spirilla and bacilli of Vincent's angina. (Murphy's Laboratories report.)

The patient was given 3 grains of sodium cacodylate (hypodermic) on Oct. 25; another dose on Nov. 2, since when I have not seen him; but friends have reported to me that he is all right.

His antrum was not irrigated, as I did not wish to make any fresh wound in his nose in the

presence of such an infection, until I had same under arsenical control.

The patient was very negligent about coming in for treatment, the last one being Nov. 2 when he was far from cured.

4707 Broadway.

1. Pirot: *Annals Otol. Rhin. and Laryng.* 34: 366, June, 1925.

2. Hollander, A. R.: *Vincent's Rhinitis: Arch. of Otolaryng.* 9: 422-424, 1929.

3. Ersner, M. S. and Pressman, J. J.: *Arch. of Otolaryng.* 14: 818-822, 1931.

## HUMAN BREAST MILK IN THE TREATMENT OF ENDOCRINE OBESITY

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CHICAGO

One of the major problems in endocrine therapy is the inability to obtain pure, unaltered, active products. In the processes of extraction and under the influence of digestive agents, the active principle of the glandular products necessarily becomes modified. It is partly for this reason, that some endocrine therapy falls short of expectations, especially ovarian and testicular extract therapy.

This same problem exists in the treatment of endocrine obesity. In spite of the administration of maximum doses of the dynamis group of ductless gland extracts, mainly thyroid, anterior pituitary lobe and adrenal substance, I found that some cases did not respond. That is, they either did not lose, or lost for a while and then became stationery. As a result of these failures, I searched for some agent that would contain the dynamic group of hormones in an unaltered form and could be administered subcutaneously without any ill effects. For a while, it appeared that the urine of pregnant women would fulfill these requirements. However, inasmuch as the urine had to be filtrated, and administered in such large doses that reactions similar to serum sickness and abscesses with subsequent sloughing were obtained, I was forced to look for some other substance. It appeared to me that human breast milk was the answer to my problem. Knowing that Patel (*Lyon med. Apr. 1920*) had used it for the treatment of hypertrophied breasts without any harmful results, I began two years ago to administer to those cases that resisted all recognized forms of treatments. The results obtained were satisfactory. To illustrate,



I should like to present two cases that are of special interest.

Case 1. G. M., a female, aged 39 years, 59½ inches in height and 188 lbs. in weight first came to me July 1, 1933, complaining of asthmatic attacks for several years at very frequent intervals which were becoming worse until she experienced these attacks at least once a day. She also complained of general weakness and nervousness. She claimed that she ate very little and was gaining in weight which aggravated her condition. Examination revealed:

Universal distribution of adipose tissue.

Pulse 84; blood pressure 110/70; respiration, 16; temperature, 97.5° F.; basal metabolism rate, -15.5.

All other findings, as blood serology and chemistry, urine and kidney function tests, sugar tolerance, carbon dioxide tension of the blood, liver function tests, electrocardiograph, x-ray of sella turcica and x-ray of chest were essentially negative.

She was placed on a diet of 800 calories per day for one week. Her weight remained stationary. Then, in addition to above diet, she was given thyroid substance gr. 11/2 per day gradually increased to gr. 3 per day and other glandular therapy. At the end of three months, she lost 40 lbs. In spite of increased dosage to gr. 10 per day of thyroid substance, patient remained stationary for the following month. On November 1, 1933, I began the administration of unchanged human breast milk three times a week in 5 c.c. doses gradually increased to 15 c.c. subcutaneously until 15 injections were given. In addition, one grain of thyroid substance and other glandular products were administered orally. She began to lose again. Now, February 1, 1934, she weighs 122 lbs., having lost 66 lbs. in a period of seven months.

During the past five months, patient has had no asthmatic attacks. She has a sense of well being that she never experienced before, and eats an amount of food normal for her caloric requirements.

Case 2. Miss E. R., aged 18 years, 60¼ inches in height, weight 155 lbs., first came to me May 1, 1933, with following history:

Since the age of twelve years, she had been increasing in weight until the age of fourteen, when she became stationary at 153 lbs. and has been remaining so in spite of vigorous dieting, much medical care, and frequenting many lay reducing institutions. Also, she complained of hypomenorrhea and irregular menstruation. Examination revealed:

Universal distribution of adipose tissue with extraordinary hypertrophy of the breasts.

Pulse 60; blood pressure 114/85; basal metabolism rate -20.3; temperature, 97.0° F. All other findings as in above case were essentially negative.

Patient was placed on a diet of 1200 calories per day for five days at which time patient gained 1¼ lbs. She was then placed on a 1000 calories per day for three days at which time patient gained ½ lb. She was placed on 800 calories for three days. The weight remained stationary. At this time, 3 gr. of thyroid substance per day gradually increased to 6 gr. per day and

other glandular products were added. Under this regime she lost 20 lbs. in four months. She remained stationary the following month. At this time, October 1, 1933, the administration of human breast milk exactly in the same manner as above case was begun. In one month she lost 8 lbs. The milk treatment was discontinued at the end of one month. In spite of maximum doses of thyroid substances and other glandular products and a diet of 800 calories per day, patient regained 7 lbs. in two months, January 1, 1934, at which time patient was admitted to a hospital, where human breast milk was available at any time. There she was given subcutaneous injections of 5 c.c. gradually increased to 15 c.c. of human breast milk on alternate days, ½ gr. thyroid substance per day, and a diet of about 1200 calories per day. At the end of one month patient lost 14 lbs. making her weight 107 lbs. I might add that she has a sense of well being that she never experienced before. Her attitude toward life is much brighter. Her menstrual flow has increased in amount and has become regular. Basal metabolism rate and pulse rate have become normal. All other findings are still normal. Also, the breasts have diminished in size remarkably.

In conclusion I wish to state from my experiences with the use of human breast milk in many cases, especially the last two cases, there is much promise of its future clinical use for the treatment of endocrine obesity, and venture to suggest further study of human breast milk by laboratory workers.

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## DIFFERENCE IN THE REACTIONS OF ALCOHOLICS

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DUNNING, ILLINOIS

This patient was admitted to the Chicago State Hospital November 2, 1933, and diagnosed alcoholic psychosis, pathological intoxication.

Our note from the psychopathic hospital states that "patient is a markedly deteriorated appearing male who is filthy in his bodily cleanliness. He was here in June, 1932, and committed to Elgin. He has apparently been drinking excessively."

When admitted to the Chicago State Hospital he was received on a stretcher. He was weak and tremulous but cooperated in the examination. He seems to be interested in his surroundings, is clearly oriented, general knowledge, calculation and judgment are fair. He also had insight; knew his condition was due to drink. He denies

that he has heard voices or seen strange things. He answered everything to the point. He knew he was here one week and before he came here he was at the psychopathic hospital for several days but he does not know how he got to the Psychopathic Hospital. He said he was a watchman in a coal yard in Calumet City. While working he began drinking and he does not remember anything that happened to him until he woke up at the Psychopathic Hospital.

Patient states he left the Elgin State Hospital about three months ago and has been drinking steadily until his commitment. However, he claims definitely that he does not remember seeing visions or hearing voices or knowing anything at all until he woke up in the Psychopathic Hospital.

While in our Staff Meeting he admits that he was drinking about a quart of whiskey a day which was of poor grade. He paid about 35 cents a pint.

While moonshine, apparently, is soon going to be a thing of the past in the United States, still what we have learned from the effect of moonshine on people is still worth while considering. As I have reported time and again, the psychosis of patients using moonshine whiskey differs from that of the regular alcoholics, as they develop a complete amnesia, as in this case, when they do not remember anything that has happened to them, even their hallucinosis. They differ from the delirium tremens of alcoholics. Where they do not remember the events as they happen but they generally remember the hallucinosis they have experienced, such as seeing snakes, pink elephants, etc., which is known to everybody.

When they develop an acute hallucinosis it is usually of the auditory type while in the case of drinking moonshine or cheap whiskey it is generally the visual type. It goes to prove that the different nerve cells have a predilection for different poisons. It has been known for a long time that the optic nerve will be poisoned by wood-alcohol while the rest of the nerve cells might not be affected by that poison in the same amount.

However, it has not been known before that the different nerve cells of the cortex, that is, it has probably never been proven that some cells in the cortex will have a predilection for a poison, while others in the same cortex will not. How-

ever, that such is the case is proven by the reaction of people to the different forms of alcohol. Granted that this is true, we might also expect in the general nutrition that some cells of the cortex are benefited by nutrition while other cells will not be benefited but might be starved by the same nutrition.

Considering the complexity of the nerve cells we can readily understand why some people will develop a psychosis under the same circumstances that others will not.

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Case presented at the Polish Medical Society, Nov. 15, 1933.

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## SODIUM SALICYLATE, CALCIUM GLUCONATE, PARATHORMONE, THE BASIC MEDICINES IN THE ACUTE INFLAMMATORY DISEASES, ACT AS THE SPECIFIC REMEDY IN THE TREATMENT OF LOBAR PNEUMONIA

HARRY O. NYVALL, M.D.

CHICAGO

Inflammatory diseases may be divided into two groups, infectious and organic. In the first group may be placed such diseases as lobar pneumonia, scarlet fever and erysipelas, while appendicitis, cystitis and myocarditis are examples of the second group. The treatment of inflammatory diseases will be made easier and simpler if we regard them in the light of their general pathology, with acute, subacute and chronic stages, their symptoms and signs as active or passive, and their etiology as specific or idiopathic, and if we classify our drug and physical therapies according to their actions as being either sedative, stimulative, alterative, basic, and specific. The sedative drugs are to be used for their astringent and absorbing effects on the exudation of the acute pathology, and for their mitigating and alleviating effects on the active signs and symptoms. The stimulative drugs are used for their lytic and irritating effects on the fibrous infiltration of the chronic stage and for their exciting effects on the passive signs and symptoms. The alterative drugs are used for their nutrient and tonic effects on the body, and the specific drugs for their curative and destructive effects on the causative agent. The basic drugs form the nucleus of the various medicines used in the treatment of diseases on account of their curative effects on the products of inflam-



mation and for their mitigating effects on the signs and symptoms arising from the pathology. The basic medicines used in the acute stage are the combination of sodium salicylate, calcium salts and parathormone; in the chronic stage, a combination of sodium iodide and vaccines (and thyroxine), and in the subacute stage, which is the intermediate or convalescing stage, are a combination of calcium salts, sodium iodide, and parathormone (and thyroxine). All our diseases should be treated along some definite or proper line of procedure. This can be done by selecting the drugs and other therapy to combat the existing pathology, signs and symptoms, and arranging them in some sort of a formula. This formula will be known as the basic formula and should include the basic, specific, palliative and alterative drugs.

Lobar pneumonia is an acute infectious disease. Its pathology is that of acute inflammation of the lung and is characterized by fever, redness and swelling or induration which consists of an exudation of serum and infiltration of red and white cells and some fibrin into the lung tissue. The signs and symptoms of lobar pneumonia are those of increased activity of the respiratory and cardiac systems, namely, cough, expectoration, pleuritic pain, dyspnea, cyanosis, increased pulse and respiratory rates, dullness, râles and bronchial breathing. The disease is usually ushered in with chills and pain in the chest, and runs a definite course of ten days, when the illness usually terminates with the so-called crisis.

In the treatment of lobar pneumonia the drugs and physical therapy used in the basic formula are selected to correct the acute inflammatory process in the lung, to palliate active signs and symptoms, to support the body, and to prevent if possible, such complications as pleurisy, bronchitis, heart collapse and relapses. Chief among the drugs will be the basic ones, which because of their curative effects on the pathology of the lung will play the rôle of the specific drug. So far we have no specific drugs in the treatment of pneumonia and if we ever do have a specific serum, the basic medicines will enhance the action and hasten recovery. Such an effect I have encountered with the sera, Nos. 1 and 2, for pneumonia. The adjuncts to the basic medicines will be the palliative drugs, physical therapy and alterative drugs, the latter being used in

the convalescing stage of lobar pneumonia. The method of choice in the administration of these drugs is the intravenous and subcutaneous routes.

In addition, the treatment for lobar pneumonia will include a systemic and local course of treatment. The remedies used in the systemic treatment are for the purpose of supporting the body during the illness and restoring it to normal after recovery. This is accomplished by the administration of tonics and foods, through elimination of waste products, and the detoxication of toxins of faulty metabolism.

The tonics comprise the drugs and physical therapy used for their alterative effects on the blood, nerves and appetite. They are employed especially in the convalescing period. The preparations generally prescribed for this purpose are two teaspoonsful before meals of elixir of glycerophosphate compound, syrup of hypophosphite compound, or elixir of iron, quinine and strychnine, with two capsules of halibut liver oil (halibut oil) with vitamins A and D, once daily. If more rapid results are desired it is best to give intravenously 5 c.c. of Upjohn's glycerophosphate compound or a 5 c.c. ampoule of Pitmann Moore's iron glycerophosphate compound and a 5 c.c. ampoule of calcium chloride three times a week, with the two capsules of halibut oil. A prolonged convalescing period will be benefited by a course of violet ray treatment and twice a week injections of 1 c.c. of Liver Extr. (Lilly).

The elimination of waste products is accomplished by means of sudorifics, such as salicylates, wet packs and autocondensation, diuretics, such as the acetates or citrates and caffeine citrate, and by cathartics such as calomel followed by a saline in four to six hours, enemas and petrolatum.

The products of faulty metabolism are the uric acids, indican, skatole, and "acidosis." Their detoxication is accomplished through the aseptic foods, such as the starchy products (cereals, toasts), fruit and fruit juices, water and milk, mineral waters, and antiseptic medicines, such as sadol, fel bovis, colchicine, kaolin, bacillus acidophilus, and hepatic extract. Acidosis may be combated also by intravenous injection of a 5 c.c. ampoule of calcium chloride and a 20 c.c. ampoule of 50 per cent. dextrose, or 10 c.c. of Lilly's glucocalcium, repeated daily as long as anorexia and vomiting persists. Sodium

salicylate may be added to the mixture of calcium and dextrose.

The local treatment will deal with the respiratory tract, especially the diseased lung, the heart and any other diseased organ whose condition may be exacerbated by the presence of the pneumonia. The treatment will contain the basic formula, which includes the palliative drugs, the specific sera, and the basic medicines.

The palliative measures include the sedative drugs and physical therapy to alleviate any active symptoms and the stimulative drugs to meet such emergencies as cardiacs and respiratory failure. These measures may be listed as follows:

1. Adhesive tape to immobile the chest for pleuritic pain.
2. Wet packs (these are rarely used).
3. Codeine sulphate gr.  $\frac{1}{4}$  for pain and for the tickling cough. It may be given alone or in such cough compound as syrup of thiocol.
4. One or two allonal tablets by mouth or sodium luminal, gr. ii, by hypodermic for restlessness and insomnia.
5. Tincture of digitalis, dr.  $\frac{1}{4}$ , four times a day or two ampoules of digifolin daily to digitalize the heart. This is given usually during the first three or four days of the illness, e. g., to digitalize the heart in case of myocarditis.
6. Lilly's ephedrine compound, No. 30, with merthiolate or a combination of ephedrine inhalant, dr. ii, pineoleum q. s. ad. oz. i, is given as nasal drops as needed for nasopharyngitis.
7. For respiratory failure, coramin or alpha lobalein hypodermically, and in extreme cases the administration of oxygen.

8. For cardiac fibrillation, digifolin.

9. For cardiac collapse, a mixture of adrenalin and pitressin or suprarenal and pituitary gland extracts.

The specific remedies in lobar pneumonia are the two sera, known as Serum No. 1 and Serum No. 2. Before they can be used, the pneumococci must be first isolated and then identified. This necessitates a delay and then there is only twenty-five per cent. of chance that either one of these sera can be used in the given case. Another drug which may be considered a specific is potassium guaiacol sulphonate which is given in the form of *calcicol*, for its bactericidal action. The sera and the potassium guaiacol sulphonate play a minor rôle in the category of a specific as do the basic medicines, sodium salicylate, calcium

gluconate and parathormone. Sodium salicylate is used for its antipyretic and antiseptic effects; calcium gluconate for its astringent effects on the capillary walls and its absorbent effects on the exudation of the inflamed lung, while parathormone is used to increase the blood calcium and to enhance its action.

In the treatment of lobar pneumonia and other inflammatory diseases these basic drugs are best administered whenever possible in the following manner: A 10 c.c. ampoule of 20 grains of sodium salicylate and a 10 c.c. ampoule of calcium gluconate, 10 per cent. are given together daily, preferably in the afternoon, through the crisis or until the temperature drops to  $99^{\circ}$  and pulse to normal rate, when they are given every other day for seven to ten days. If the temperature remain above  $102^{\circ}$  and râles persist in the consolidated lung, it is advisable to give the injections twice daily, morning and evening. *Calcicol* may be used in place of calcium gluconate if an expectorant and bactericidal agent are desired (and if the pneumonia is caused by the Freidlaender's B). *Calcicol* is a compound of calcium and potassium guaiacol sulphonate.

If the intravenous injection of salicylate and calcium is objectionable, one may prescribe two to four tablets of cal-aspirin every three hours as needed, or two teaspoonsful, p.r.n. and then four times a day of this mixture:

Rx. Codeine sulphate .....gr. vi  
Sodium salicylate .....dr. iv  
Calcii gluconate .....dr. iv  
Aq. distil. ....oz. ii  
Syr. cocoa q. s. ad.....oz. vi  
M. et sig. 2 dr. q. three hours p.r.n.

Parathormone, 1.5 c.c., is given hypodermically daily until the temperature drops to  $99^{\circ}$  when it is given in 1 c.c. doses every other day until the temperature, pulse and respiration are normal, when it is discontinued. On rare occasions, as when edema of the lungs develop, it is necessary to resort to 2 c.c. of the parathormone twice a day until the condition clears up. In the presence of high fever above  $102^{\circ}$  it is advisable to give the maximum dose of 1.5 to 2 c.c. of parathormone and not the small dose of 0.5 c.c. as recommended in the literature. It requires twelve to sixteen hours for the parathormone to effect a drop in temperature and mitigation of the signs and symptoms. In infants and young children I have found that 0.5



c.c. to 0.625 c.c., in older children 1 c.c. may be regarded as the maximum dose in the presence of high fever and any acute condition such as pertussis and asthmatic attacks.

The results obtained by the proper administration of sodium salicylate, calcium gluconate and parathormone as outlined above are very gratifying as one can judge from the following findings:

1. Lobar pneumonia can be aborted if the treatment is started within eight hours after the onset of chills, fever and pleuritic pain.

2. Lobar pneumonia can be prevented if treatment is carried out early in all influenza cases, threatening pneumonia, postoperative conditions with chills, fever, and patches of râles in the lung.

3. Complications, such as pleurisy and relapses, are rarely encountered if the treatment is continued for a period of seven to ten days longer after the temperature, pulse, respiration and lungs are normal. In cases of hypotension one is apt to encounter migratory type of pneumonia. The pseudo-crisis comes about the fifth or sixth day and the crisis five days after that.

4. There will be an absence of herpes labialis, rusty sputum, râles, dyspnea and cyanosis.

5. The temperature will be under  $102^{\circ}$ , respiratory rate under 20, and the pulse will be decreased also.

6. The crisis will come on the fifth day and by the seventh day the lung will be normal.

7. The prognosis will be good and recovery will be certain.

8. Nurses and cold fresh air may be dispensed with. Home care is all that is essential.

Now by way of comparison let me outline the treatment and enumerate the results obtained in our text-books. The text-book line of treatment may be briefly summarized, thus:

1. Nurses and cold fresh air.
2. Digitalize the heart.
3. Pneumonia jacket.
4. Treat the arising symptoms and signs with:
  - a. Tape chest for pleuritic pain.
  - b. Codeine for pain and cough.
  - c. Barbitol derivatives for insomnia and restlessness.
  - d. Atropine or belladonna for lung edema.
  - e. Cough medicines.
  - f. Wet packs and salicylates for the fever.

5. Treat the emergency signs and symptoms with:

- a. Digitalis or digifolin for auricular fibrillation.
- b. Respiratory failure with coramin and oxygen.
- c. Cardiac failure with camphor, strychnine, caffeine, digitalis and adrenalin.

The following results are the usual text-book findings:

1. There are no specific measures for aborting or preventing pneumonia. The measures recommended for the prevention of pneumonia and the usual precautions regarding health, care of the sick and of operative cases.

2. Empyema, edema of the lungs, relapses, cardiac and respiratory failure are too frequent complications of pneumonia.

3. Herpes labialis, rusty sputum, cough, dyspnea, cyanosis, râles are usually present.

4. Temperature is usually above  $102^{\circ}$ , respiratory rate about 33, and the pulse, markedly increased.

5. Crisis occurs about the tenth day, and it takes two to seven days more for the lung to clear up.

6. Prognosis is fair but usually doubtful. It is grave and usually fatal when pneumonia is complicated by such organic diseases as diabetes mellitus, myocarditis, nephritis, hypo- and hypertension, senility, adiposity, etc.

This marked difference in the results obtained from the line of treatment with the basic drugs as the specific remedy and the text-book line of treatment may be better shown by the chart contrasting the two lines of treatment.

I have used the basic drugs (sodium salicylate, calcium gluconate and parathormone) in the treatment of over 100 consecutive cases of lobar pneumonia and the so-called threatened pneumonia, which includes those cases of influenza, post-operation, etc., whose initial symptoms begin with chills, fever, pain in chest, cough, and localized râles. These latter cases respond to abortive measures. The lobar pneumonias, which number about one-half of all the cases, include the simple pneumonias, complicated pneumonias with such organic lesions as asthma, myocarditis, hypertension and hypotension blood pressures, diabetes mellitus, obesity, nephrosis, senility, etc., and postoperative pneumonias.

For purposes of demonstration I have selected four of the fifty lobar pneumonia cases, one simple and three complicated cases. You will see that the complicated cases behave and respond

Name of Condition	Basic Drugs	Text-book Treatment
Specific remedy	Yes, in the basic drugs	May be in Types 1 and 2 but in strict sense, no
Abortive and preventive measures	Yes	No
Respiratory and cardiac signs and symptoms	Alleviated and absent	Increased and distressed
Temperature, respiratory and pulse rates	Reduced	Increased
Crisis	Fifth Day	Tenth day
Course of illness	Curtailed	Run its course
Complications	Rarely, if any	Yes, too many
Prognosis	Good: recovery assured	Fair and grave in complicated cases
Mortality	In 50 cases, none	Much too high (40 per cent.)

to the basic drugs in the same way as do the simple pneumonias, and that because their recovery is assured, their symptoms alleviated, and the course of the illness curtailed, just as in the simple pneumonias, the prognosis need no longer be regarded as fatal nor grave. The simple case is that of a lobar pneumonia which was aborted, and the three complicated cases include the migratory type of pneumonia with hypotension, lobar pneumonia complicated by diabetes mellitus, and lobar pneumonia complicated by asthma and angina pectoris.

Cast 1. Lobar pneumonia aborted.

Mr. J., an Indian, aged 24 years, was seen April 18, 1932. After a hard tennis match he rested on the ground. He was unable to resume his play because he suddenly developed chilly sensations and a feeling of constriction in the chest. He betook himself to his hotel, a distance of three-quarters of a mile, where marked chills and pain in the left chest developed. About four hours later I was summoned and found him in bed with extra comforters over him. His chief complaints were pain in the left chest, painful breathing, fever, and expectoration of bloody sputum. On examination, temperature was 101°, pulse 102, and respirations 24. I was unable to percuss any dullness anteriorly or posteriorly, but posteriorly just below the left scapula there were elicited a patch of râles and bronchial breathing. A diagnosis of lobar pneumonia was made and treatment started. A 10 c.c. ampoule of 20 grains of sodium salicylate and a 10 c.c. ampoule of calcium gluconate were given intravenously every hour and a half, and 1 c.c. of parathormone was given intramuscularly once daily. The following chart shows the result of treatment.

Date	Time	Temp.	P.	R.	BM.	Notations and Medication
4/18	P. M.	101	102	24	0	Immobilized left chest with tape. Ampoule of sodium salicylate and calcium gluconate intravenously and parathormone s.c. Painful cough and bloody sputum.
4/19	A. M.	100.6	90	18	0	Sodium salicylate, calcium gluconate and parathormone. Feels better. Râles negative; bronchial breathing.
	P. M.	101	96	20	x	Medication same. No cough, bloody sputum or pain.
4/20	A. M.	98	70	15	x	Sweated freely during night. Feels P.K. No râles, bronchial breathing, or cough. Medication same.
4/21	P. M.	98	70	15	x	Lungs and heart normal. Out of bed but must be confined to room for two more days. Medication continued.

Diagnosis: Lobar pneumonia aborted.

Cast 2. Migratory Type of Pneumonia with Addison's Syndrome.

On the morning of February 15, 1932, a house call was made on Mr. W., aged 42 years, whose chief complaints were pain under right shoulder blade, painful and suppressed cough, blood streaked sputum and fever. He stated that the night before he developed marked chills and pain in the right chest. His wife added more comforters over him and gave him two aspirin tablets and a glass of hot lemonade. His chills subsided but the pain continued and later on he became feverish.

Patient was a small man, about five feet four inches in height and weighing 118 pounds. His skin was bronze. A month before onset his blood pressure was 95/65 and pulse 60. On examination, dullness, râles and bronchial breathing were found at middle of right lobe. A diagnosis of lobar pneumonia was made and treatment started. The progress of the case can best be shown on the following chart:

Remarks: On the fifth day of illness, with a chill, etc., the apical lobe became involved while resolution of the middle lobe was taking place. By the seventh day the middle lobe had cleared up and by the ninth day resolution of the apical lobe was taking place, and by the eleventh day the apical lobe had become normal.

Diagnosis: Migratory lobar pneumonia with Addison's syndrome. Complete recovery.

Case 3. Migratory lobar pneumonia with diabetes mellitus.

Mr. J., aged 29 years, was seen at his home on the afternoon of March 4, 1933. He complained of pain in the left shoulder joint which was increased by movement of arm. There was no redness nor swelling of the joint. There was no pleuritic pain, cough or expectoration. Temperature was 102° and pulse 102. A



preliminary diagnosis of acute arthritis was made. The arm was bandaged to the chest. An ampoule of calcium gluconate and one of sodium salicylate were given intravenously. Parathormone, 1.5 c.c., was given intramuscularly. For the past ten months the patient has been receiving insulin for diabetes mellitus. Ten units morning and night sufficed for the last three months to keep him sugar free without dieting.

The patient weighed 140 pounds and was five feet, eleven inches tall. His blood pressure had been reading 95/70/25, and pulse 78.

On the following day, March 5, temperature was 103 and pulse 102. There were no other complaints than the painful shoulder joint. The ampoule of calcium gluconate and sodium salicylate and parathormone, and the ten units of insulin morning and evening were continued.

On March 6 temperature was 102, pulse 96. His shoulder was tender but there was no pain on motion. Urine was positive for sugar. Medication was continued as on previous day.

March 7 I was called to his home in the morning

because of pain in the left chest, suppressed, painful cough and blood streaked sputum. On examination there were dulness, bronchial breathing and râles of the left lower lobe. A diagnosis of lobar pneumonia was made and treatment started. The treatment as outlined in the beginning of the paper was carried out, together with ten units of insulin twice a day. His progress is indicated on the chart.

*Remarks:* The pseudocrisis came on the fourth day and the true crisis on the eighth day, and by the eleventh day the lung was normal. After the temperature, pulse and respiration had been normal for about three days, and on the twelfth day, patient collapsed, due evidently to too much insulin. He recovered by withdrawing insulin, injecting dextrose and by raising the blood pressure with adrenalin and pituitary compound.

*Diagnosis:* Lobar pneumonia complicated by diabetes mellitus. Full recovery.

Date	Time	Temp.	P.	R.	B.M.	Notations and Medication
2/15	A. M.	100.6	96	20	0	Dulness râles, bronchial breathing, blood-streaked sputum. No cardiac murmurs. Chest taped. Intravenous injection of 1 ampoul of calcium gluconate and sodium salicylate, and intramuscular injection of parathormone.
	P. M.	100	90	18	x	Cough but no pain. Intravenous injection repeated. Feels good.
2/16	A. M.	100.8	96	18	0	Condition good.
	P. M.	100	90	18	0	Feels good. Sweats freely. Coughs a little. Calcium gluconate, sodium salicylate and parathormone repeated.
2/17	A. M.	100	90	16	x	Condition good. Slept well.
	P. M.	99.6	84	16	0	Feels fine. Takes liquids well. Cough gone. Medication repeated.
2/18	A. M.	100.6	96	18	x	Fair night. No bloody sputum, dyspnea, cyanosis or herpes. Few râles and bronchial breathing.
						Urine: No albumin or sugar; indican +; casts +; few red and pus cells.
						Blood pressure 120/70; pulse 50.
	P. M.	100	96	20	0	Feels restless and nervous; râles. Medication repeated. May have black coffee.
2/19	A. M.	101	96	20	0	Had a chill early this morning. Cough and blood streaked sputum. Moist râles and bronchial breathing over middle lobe. Dulness receding. Over apical lobe fine râles and bronchial breathing. Given one ampoule of calcium gluconate and sodium salicylate, and parathormone.
	P. M.	100.8	96	18	x	Good day. Consolidation of apical lobe.
2/20	A. M.	100.8	102	20	0	Middle lobe: Dulness gone, bronchial breathing changed to bronchovesicular; few scattered râles. Apical lobe: Bronchial breathing; no râles, cough, bloody sputum, dyspnea, cyanosis or herpes. Milk of magnesia and one ampoule of calcium gluconate and sodium salicylate, and parathormone given.
	P. M.	99.8	90	18	xx	Slight cough; no sputum; feels fair.
2/21	A. M.	99	84	18	0	Feels pretty good. Middle lobe back to normal.
	P. M.	99	96	18	x	Had attack of "weakness," but feels better now. One ampoule of calcium gluconate, sodium salicylate and parathormone.
2/22	A. M.	98	90	20	0	Feels somewhat weak. Had a profuse sweat during night; no cough, pain, cyanosis, or dyspnea.
	P. M.	98	84	18	0	Bronchovesicular breathing and few moist râles over apical lobe. Medication repeated.
Date	Time	Temp.	P.	R.	B.M.	Notations and Medication
2/23	P. M.	98	78	16	x	Apical lobe back to normal. Tape removed. Feels better. One-half ampoule calcium gluconate; 5 c.c. Upjohn's glycerophosphate compound; parathormone 1 c.c.
2/24	P. M.	98	66	16	x	Feels fine. Lung clear.
2/25	P. M.	98	66	16	x	Feels fine. One-half ampoule calcium gluconate and 5 c.c. glycerophosphate comp.
2/26	P. M.	98	70	18	x	Sitting up on back rest. Feels good.
2/27	A. M.	98	70	18	x	One-half ampoule calcium gluconate and 5 c.c. glycerophosphate. Up in chair.
	P. M.	98	80	20		
2/29	P. M.	98	60	16	x	One-half ampoule calcium gluconate and 5 c.c. glycerophosphate. Up and about house. Feels good.
3/3	A. M.	98	60	15	x	Feels good. Medication the same. In arm chair.
3/6	A. M.	98	60	15	x	Feels fine. Blood pressure 100/70/30; medication the same.
3/15	Office	98	60	15	x	Blood pressure 95/65/30. Feels O. K. Lungs normal.

*Case 4. Lobar pneumonia with angina pectoris onset and complicated by asthma.*

Mr. E., aged 45, weighing 209 pounds, and a sufferer from chronic asthma, was seen at his home on the morn-

ing of May 9, 1933. He complained of excruciating precordial pain which radiated down the left arm and painful constriction of the chest. The attack came on during the night and awakened him. It had been present

Date	Time	Temp.	P.	R.	BM.	Notations and Medications
3/7	A. M.	102	96	24	0	Painful cough, bloody sputum, dulness, bronchial breathing and râles of left lower lobe. Left chest taped. Calcium gluconate, sodium salicylate and parathormone and insulin continued. Digitalis tablets, 2 grains, four times daily.
	P. M.	101	96	18	x	Feels pretty good. Calcium gluconate and sodium salicylate given.
3/8	A. M.	100	90	16	x	Few râles in area of consolidation. Cough not troublesome. Glycosuria +. Calcium gluconate, sodium salicylate, parathormone, insulin and digitalis continued.
	P. M.	102	102	20	0	Calcium gluconate, sodium salicylate and digitalis.
	P. M.	101.8	102	18	0	Feels better. Insulin and digitalis.
3/9	A. M.	100	96	16	x	Calcium gluconate, sodium salicylate, parathormone, digifolin, insulin.
	P. M.	101	102	20	0	Calcium gluconate, sodium salicylate, insulin, digifolin.
3/10	A. M.	99	84	18	x	Restless night. Sweated freely. Medicine same with parathormone.
	P. M.	100	96	18	0	Few râles, pain in chest with suppressed cough. Medication same without parathormone.
3/11	A. M.	101	102	20	0	Râles, bronchovesicular breathing, recession of dulness of lower lobe. In left apical lobe, few fine râles, dulness and bronchial breathing. Re-taped chest. Cough troublesome. Medication same.
	P. M.	101.3	102	18	x	Feels better. No dyspnea, cyanosis. Fair appetite. Medication continued without parathormone.
Date	Time	Temp.	P.	R.	BM.	Notations and Medications
3/12	A. M.	100.4	96	16	x	Good night. Medicine same, with parathormone.
	P. M.	101	102	18	x	Cough loose, with rusty sputum; no pain or dyspnea. Râles of lower lobe. Medicine same as on previous afternoons.
3/13	A. M.	98	80	15	x	Sweat freely during night; feels fair. In lower lobe no dulness, râles or abnormal breath sounds. In apical lobe coarse râles and bronchovesicular breathing. Calcium gluconate, sodium salicylate, parathormone and insulin.
	P. M.	98	72	15	0	External piles; tympanitis; no cough; few râles of apical lobe; insulin given.
3/14	A. M.	98	84	16	0	Feels fair; piles; tympanitis; few coarse râles and normal breath sounds. Glycosuria + Insulin given.
	P. M.	98	78	18	xx	Piles better tympanitis still annoying. No cough; still few râles in apical lobe. Insulin, other medication and parathormone.
3/15	P. M.	98	72	16	x	Feels pretty good. Tympanitis not so bad. No cough, dyspnea or cyanosis. Calcium gluconate, sodium salicylate, parathormone, insulin.
3/16	7 A. M.	97	66	12	0	Was called because patient had sinking spell like he gets from too much insulin. He was weak and dyspneic, with cyanosis of lips and fingers. Pulse slow and of extra-systolic type. Heart sounds like a laboring, idling auto motor with a missing spark plug. Insulin stopped. Gave him adrenalin and pituitary compound subcutaneously and then an ampoule of 20 c.c. 50 per cent. dextrose with iodide of sodium, 16 grm.
	11 A. M.					Repeated adrenalin and pituitary compound; also gave ampoule of coramin. Feels better. Still has cyanosis of lips and fingertips. Heart not so labored and dyspnea less marked.
	4 P. M.					Adrenalin and pituitary compound repeated. Pulse still irregular (extrasystolic) and slower. Heart still laboring some. Cyanosis of fingers and lips.
	10 P. M.					Repeat adrenalin and pituitary compound; also coamin. Feels better. Heart tones stronger and pulse extrasystolic but of fair quality. Lungs clear.
Date	Time	Temp.	P.	R.	BM.	Notations and Medications
3/17	A. M.	98	72	16	x	An ampoule of 10 c.c., 16 gr. sodium iodide; feels stronger; pulse extrasystolic and fair quality. Heart action better. No râles or dyspnea but still cyanosis of lips and fingertips. Glycosuria +.
	P. M.					Much improved. Resting comfortably in bed although has developed aching legs.
3/18	P. M.	98	72	15	x	Feels better. Heart sound good. Pulse regular. No dyspnea and no cyanosis; sitting up in chair. Upjohn's glycerophosphate compound, 5 c.c. ampoule.
3/19	A. M.	98	72	14	x	In bed. Feeling fine. No dyspnea or distress.
3/21	A. M.	98	72	15		In bed but has been about the house. Feels fine. One-half ampoule of calcium gluconate and 5 c.c. glycerophosphate comp. Glycosuria +; no insulin.
3/25	A. M.	98	60	12	x	In bed, but in good condition. Calcium gluconate and glycerophosphate comp. Insulin resumed, 10 units morning and night.
3/27	A. M.	98	70	14	x	Condition good. Treatment as on 3/25.
3/30	A. M.	98	66	12	x	Condition good. Calcium gluconate and glycerophosphate comp. with insulin twice daily. Trace of sugar.
					x	Condition good. Medication same.
4/2	A. M.	98	72	14	x	Feels fine. Weighed 136 pounds; still receiving insulin twice daily at home. Trace of sugar in specimen after breakfast only. Blood pressure 95/70/25.
4/11	Office	98	84	15	x	Prescribed this mixture to be taken orally: Syr. ferri iodidi, dr. iv; syr. phosphate comp. oz. iv; essence of pepsin, q.s. ad oz. vi. Two teaspoonful t.i.d., p.c.
5/5	Office	98.2	72			Weighs 141 pounds. Blood pressure 100/65/35.



one hour when I saw him. Auscultation of the heart was negative for murmurs, and of the lungs gave the usual asthmatic breathing only on forced breathing. On questioning it was learned that the patient had gone out looking for work on the preceding morning and was unsuccessful in finding it. In the early part of the evening he spent a few hours in a saloon drinking and talking to friends. After that he boarded a street car and got off at his corner. While on the car he experienced a feeling of dizziness and dyspepsia which became more severe as he rode along. When he got off the car he had to support himself against the lamp-post for a quarter of an hour before he was able to proceed to his home. When he finally got into bed he was "all in." He dozed off to sleep and was awakened by sharp heart pain and constriction of the chest. Temperature 98 and pulse 98. He was given a hypodermic injection of  $\frac{2}{3}$  grain of pantopon and 1/100 nitroglycerine, with instructions to his sister, who is a nurse, to give him  $\frac{1}{3}$  grain of pantopon and 1/100 nitroglycerine in one hour.

At 10 A. M. I made another house call. The anginal attack was over but the patient complained of soreness and lameness of left arm, sensitiveness of the chest and a substernal ache. The abdomen was distended, rigid and extremely tender in the epigastric region. Temperature 98, pulse, 108, respiration 36. There were no cardiac murmurs. Faint asthmatic breathing was evident only on forced inspiration; otherwise the lungs were normal. A preliminary diagnosis of probable rupture of a gastric ulcer was made. Icebag to epigastrium and pantopon, gr.  $\frac{2}{3}$  subcutaneously, ordered. Ordered x-ray, urinalysis and blood count.

At 2 P. M. another house call was made. The report of the x-ray examination was that there was a consolidated patch in the center of the right middle lobe. Leucocyte count was 25,000 and urine was positive for sugar. Temperature 101, pulse 108, respirations 36. A diagnosis of lobar pneumonia was made and treatment started. The same routine as to systemic and local treatment as practised in the preceding cases was followed here. The progress is detailed in the chart.

*Remarks:* Onset with anginal attack. Crisis came on fifth day and by seventh day lung was normal.

*Diagnosis:* Lobar pneumonia with angina pectoris, at onset complicated by asthma. Full recovery.

In each of these cases the general *systemic treatment* included a liquid diet at first, then a semi-solid diet, with mineral waters, fruit juices, etc. Two to four teaspoonsful of sodium phosphate (Fleet) in a glass of water or a glass of citrate of magnesia or one to two tablespoonsful of milk of magnesia before breakfast, for a laxative were given as needed. Where vomiting or anorexia occurred, 20 c.c. of 50 per cent. dextrose were added to the intravenous basic medicines.

The *local treatment* included sedative palliatives, such as taping the chest, nasal oil drops, codein for pain and cough, allonal tablets for insomnia, and digitalis for the heart when needed; cough mixture such as syrup of thiocol, and stimulative palliatives, such as adrenalin and pituitary compound, coramin and digifolin. The basic medicines, a 10 c.c. ampoule of 10 per cent. calcium gluconate and a 10 c.c. ampoule of 20 grain sodium salicylate were given once or twice daily intravenously, and 1.5 c.c. and later on 1 c.c. of parathormone intramuscularly once daily at first and then every other day.

The recovery of these complicated cases can only prove that the treatment of lobar pneumonia by correcting the existing acute inflammation of the lung with the basic drugs of calcium salt, sodium salicylate and parathor-

Date	Time	Temp.	P.	R.	B.M.	Notations and Medications
5/9	2 P. M.	101	108	36	0	Face flushed, suppressed painful cough, râles and bronchial breathing. No cyanosis or dyspnea. Calcium gluconate, sodium salicylate and parathormone given.
	10 P. M.					Condition same. Calcium gluconate and sodium salicylate.
5/10	2 P. M.	101.4	108	32	x	Feels better; breathing easier. Dulness of middle lobe with bronchial breathing and a few scattered râles. Heart in good condition. Calcium gluconate, sodium salicylate and parathormone.
	10 P. M.					Same condition. Calcium gluconate and sodium salicylate.
5/11	A. M.	101	102	30	x	Feels better. No pain in chest; no cough; no cyanosis; no dyspnea. Calcium gluconate, sodium salicylate and parathormone.
	P. M.	101.4	108	33	0	Calcium gluconate and sodium salicylate.
5/12	A. M.	100.4	102	30	x	Calcium gluconate, sodium salicylate, and parathormone.
	P. M.	100	96	28		Feels fine. Bronchial breathing. Few scattered râles.
5/13		99	90	22	x	Good sweat last night. Râles coarse. Bronchovesicular breathing. Dulness receding. Calcium gluconate, sodium salicylate and parathormone.
5/14		99	90	22	x	Sweated again. Scattered moist râles. Absence of bronchial breathing. Feeling fine. Calcium gluconate, sodium salicylate and parathormone.
5/15		98.4	84	22	x	Lung clear; no râles. Sits up in bed. Feels well. One-half ampoule calcium gluconate, sodium salicylate and parathormone.
5/16		98.6	84	22	x	Sitting up in chair at window. Parathormone.
5/17		98.6	84	22	x	Patient fully dressed; smoking cigar on back porch. Feels well.
5/18		98.6	84	22	x	Fully dress and walks about house; ready to look for work. Lungs clear but on deep forced expiration there is an occasional asthmatic râle.

none is superior to the text-book method by treating the arising symptoms and combating toxemia, by means of various drugs and physical therapies. Furthermore, the results obtained by means of the basic drugs, as are evident by the certain recovery from the illness, mitigation of symptoms and signs and by curtailing the course of the illness, so that the crisis comes on the fifth day rather than on the tenth, ought to be conclusive enough that these drugs can be looked upon as the specific remedy in the treatment of lobar pneumonia until at least a specific serum is discovered. Even if a specific serum were available, these basic drugs would enhance its action by absorbing the products of the acute inflammation and therefore hastening recovery.

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### ECTOPIC PREGNANCY: ITS RECOGNITION

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Approximately 600 women die in the continental United States each year as a result of ectopic pregnancy and its sequelae. This appears to be a rather small number in comparison to the average of 14,730 deaths in the same area, from all puerperal causes,<sup>1</sup> (about 4%) yet, when as Schumann<sup>2</sup> has shown, extrauterine pregnancy is found about once in 300 intrauterine pregnancies, the seriousness of the condition is apparent. This is a condition which may be cured in its incipency, and indeed, even after the rupture has taken place, if it is recognized. It is with the view that we may more readily recognize the condition and, if possible, prevent the disaster, that this review of some 1,964 cases is made.

*Etiology:* Extrauterine pregnancy may take place at any time during the child-bearing period. Masson<sup>3</sup> has put the extremes at from 15 to 52. The most frequent age range in a total of 1,841 cases is 23 to 34, and the average is 18 to 40. The relation of ectopics to all pelvic disorders (45,307 cases), is 1 in 68 or 1.4%.

That previous salpingitis, usually gonorrheal, plays a major part in the arrest of the ovum outside of, or in the tube, there cannot be much doubt. Howard Taylor, Sr., in reporting 44 cases from the Roosevelt Hospital in New York, states that 76% gave a history of inflammation of the

appendages or it was discovered at operation. Others gave the following figures: Franz 80%; Prochonsk 50%; Schurman 50%; Falk 33%. Van Etten cites Ahlfeld who states that in his many years experience at the University of Marburg "he saw so few cases of tubal gestation that he considers the relative freedom of his patients from gonorrhea as compared with those in the large cities, to be the only explanation."<sup>4</sup>

It has been said that an unusually long period of sterility often precedes an ectopic. This is true in some cases, as the tubes may be non-patent as a result of infection; later, however, with the subsidence of the inflammation, the tubes again become patent and allow an opening to the uterus even though partially obstructed. It would appear, however, that primary sterility is not the rule since it occurred in only 10% of 2 different series totaling 553 cases and in 13.7% of a group comprising 410. The average number of pregnancies prior to ectopic in the latter group was 2.8%.<sup>5</sup>

Abnormal pregnancies prior to ectopic such as induced abortions, spontaneous abortion and previous ectopic are definite factors in the etiology (25% Urdan's series of 474).<sup>6</sup> The same is true of previous pelvic operations with their resultant inflammatory and adhesive processes.

New growths in the pelvis are apparently not as an important a cause of tubal arrest as is congenital diverticulæ of the tubes. McNally in reporting 12 cases feels that this is a much more common cause of ovular arrest than is generally believed and cites Schoenholz as reporting 15 cases of congenital diverticulæ in 32 pregnant tubes.<sup>7</sup>

#### *The Outcome in Ectopic Gestation:*

Dannreuther classifies the fate of the arrested ovum as falling into six different groups as follows:

Group 1 terminates in early tubal abortion: the embryo with a small amount of blood is extruded from the fimbriated end of the tube. The blood and the embryo lodge in the cul-de-sac and further bleeding from the tube does not occur. Following this either the pelvic hematocele is absorbed or it forms a small abscess.

Group 2 represents late tubal abortion in which there are repeated small hemorrhages from the distal end of the tube. The membranes re-



main attached within the tube and with each small hemorrhage the pulse and blood pressure are somewhat disturbed. Peritoneal irritation is set up as a result of the clots which in turn give rise to adhesions. In this group pain, metrorrhagia and abdominal soreness come on frequently. If the diagnosis is made early and the patient operated on, only a few small clots are found in the pelvis and the adhesions easily separated. However, if the process goes on, adhesions become organized involving the viscera and operative difficulties are increased. Neglect of these cases long enough results in a sudden hemorrhage from the end of the tube or from a rent in its wall, and the entire clinical picture is changed to that of the tragic stage.

Group 3 represents the type in which there is no tendency to tubal abortion, rupture takes place with a massive abdominal hemorrhage as a result of the tearing of the ovarian artery and the patient goes into shock necessitating immediate treatment in order to save her life.

Group 4 represents the type in which the tube ruptures between the layers of the broad ligament to form an intraligamentous hematocele, the layers of the broad ligament restricting the amount of bleeding and the hemorrhage spontaneously arrested.

Group 5 represents interstitial (cornual) pregnancy in which the ovum may escape into the cavity of the uterus terminating thus in uterine abortion, or attach itself to the endometrium and go on to term. If it persists in the cornua rupture will eventually take place.

Group 6 represents the group in which the embryo escapes from the tube attaching itself somewhere on the peritoneal surface and developing as a true abdominal pregnancy which may either go on to term or die, and form a lithopedion or an adipocere.<sup>8</sup>

*Aberration of the Menstrual History:* The menstrual history is undoubtedly the most important single point in the study of any case of abnormal pregnancy and yet, at times, it is more confusing and misleading than helpful. In regard to the periodicity Novak<sup>9</sup> states that in a large proportion of cases menstruation is not skipped at all. He cites Farrar and Wynne in their two series comprising 612 cases, stating that only 345 showed amenorrhea. On the other hand Sellers and Sanders<sup>10</sup> in a study of 211

cases report over 90% as giving a history of either cessation of menstruation or inter-menstrual bleeding. In Lavell's series (410 cases) the appearance of the first symptoms of ectopic varied from one week from the last menstrual period to more than three months. The usual length of time elapsed was six weeks. In another group the average was about six weeks and eight of these patients had neither bleeding nor amenorrhea. Two other authors showed that amenorrhea occurred in 75% and 71% respectively in their series.

Even in the face of such confusion it is quite generally admitted that if the patient is very carefully questioned some variance in the menstrual history can be elicited. As a rule after a short period of amenorrhea, spotting occurs. Indeed, this may happen at the expected period-time and be interpreted as menstruation. Profuse bleeding is seldom present which helps to differentiate it from an incomplete abortion.

Vaginal bleeding or spotting is probably due to the following causes:<sup>11</sup>

1. Death of the fetus. (This is a mooted point).
2. Presence of viable chorionic villi in the tube.
3. Mechanical interference (Attempts to induce abortion).
4. Idiopathic: Analogous to those cases of intrauterine pregnancy in which spotting occurs in the early months.
5. Expulsion of a decidual cast.

*Pain:* Pain is so often associated with vaginal bleeding that it would be misleading to give one preference over the other. However, pain may sometimes be present without the bleeding. Pennoyer<sup>12</sup> and others<sup>13</sup> have reported pain being present in 93% to 99% and vaginal bleeding 65% to 70%. Pain varies with the underlying pathology. Before rupture, it is usually of a colicky nature, located in either of the iliac fossae, although the lumbar region and either of the abdominal quadrants are at times affected. The pains are often quite severe and even lancinating. Painful urination and defecation may also be present: the latter often indicative of a collection of blood in the pouch of Douglas. According to one large series of cases, the pain usually radiates to either or both of the shoulders, lumbar region, any part of the abdomen

(often epigastric), pelvic region in general, and the legs. The hip, rectum, perineum and vagina may also be affected at times. Pain referred to the chest and shoulders is usually due to diaphragmatic irritation as a result of intraperitoneal bleeding. It should be emphasized that the pain in ectopic is a variable thing. It follows no definite rule or classification and its exacerbations may be from hours to weeks apart. The attacks of sharp pain are probably due to repeated small hemorrhages into the peritoneal cavity.

No mention is made in the literature of the severe pain which may follow simple tubal abortion. The author has seen one case in which the pain was so severe that the leg was flexed tightly against the abdomen and held there with both hands, and indeed, the pain and apprehension so great that the leg could not be released until a general anesthetic had been given. Laparotomy was done immediately and a mass about the size of an English walnut was found in the isthmic portion of the tube on the flexed-leg side. There was no evidence of rupture, but a thick, tarry clot was oozing from the fimbriated end of the tube. The usual resection was done and the patient made an uneventful recovery.

Concomitant symptoms of pregnancy such as morning sickness, enlargement and tenderness of the breasts, increased frequency of urination, etc., are usually not present. However, at times they are definitely present and may be the only cause for the patient to seek medical advice. This was true of the author's case referred to above: the patient sought advice simply because she thought that she had trouble in both breasts.

The classical symptoms of ruptured ectopic pregnancy are pain and syncope. They may come on very suddenly with the onset of a massive hemorrhage. One case in the author's experience is striking: an organist in a large church was suddenly seized with a severe attack of lower abdominal pain during an Easter service, collapsed and fell from the organ bench. Laparotomy showed ruptured tubal pregnancy.

Novak<sup>9</sup> states that "only a small proportion of all tubal pregnancies—probably about 5%—are encountered in the so-called tragic or cataclysmic stage. In these it is, at times, possible to elicit a history of one or more previous attacks of colicky pain together with faintness or

actual syncope, indicating, perhaps, repeated small hemorrhages before the actual deluge. In other cases the patient has had little or no previous warning, possibly having noticed only a small amount of abnormal uterine bleeding and a moderate discomfort in one or both lower abdominal quadrants. With the sudden onset of a massive hemorrhage there occurs a sharp lancinating pain in the involved side, weakness, syncope, extreme pallor, rapid pulse, cold clammy skin, sighing respiration, etc., in short all of the classical symptoms of alarming internal hemorrhage."

*Differential Diagnosis:* In a consideration of the diagnostic error Sellers et al<sup>10</sup> report 44 cases out of 135 in which the condition was incorrectly diagnosed: 16 as acute salpingo-oophoritis; 11 as acute appendicitis; 8 as uterine fibroid complicated by salpingitis. The remainder, each under 5, varied in the order given between ovarian cyst, pelvic abscess, incomplete abortion and ovarian cyst with twisted pedicle. Sellers cites Hawkes as reporting 28 mistakes out of 91 cases as follows:

Acute salpingo ovarian abscess.....	10
Acute appendicitis .....	5
Ovarian cyst .....	3
Incomplete abortion .....	3
Pelvic abscess .....	3
Fibroid .....	3
Cervical polyp .....	1

Adnexal disease, ovarian cyst and abortion head the list of missed diagnoses in Lavell's<sup>5</sup> series in which the total percentage of error before rupture was 15.3%. However, appendicitis and surgical conditions outside the pelvis were not considered.

Eleven mistakes out of one hundred cases at the Harlem Hospital in New York varied in order given: 1, acute salpingitis; 2 miscarriage with secondary anemia; 3, acute pelvic peritonitis; 4, ruptured pus tube.

Novak<sup>9</sup> feels that the most important condition to consider in the differential diagnosis are:

1. Threatened or incomplete abortion of uterine pregnancy: 1. Pain less severe than ectopic and rarely unilateral. 2. Uterus larger than ectopic for the same length of pregnancy. 3. Unilateral tender mass of true ectopic. (There is usually a much larger amount of blood lost in abortion.)
2. Acute pelvic inflammatory disease: 1. His-



tory of gonorrhea, post abortal or puerperal infection. 2. Higher fever in pelvic inflammatory disease. 3. Bilateral masses, usually, in pelvic inflammatory disease. 4. Lack of suggestive signs of pregnancy. 5. Absence of syncope with bleeding.

3. Ovarian Cysts (especially corpus luteum cyst): 1. Curettage shows presence of placental elements in ectopic.

4. Miscellaneous: 1. Ruptured corpus luteum or follicular cysts giving intra-abdominal hemorrhage (85 cases of this condition had been reported in the literature up to 1917). 2. Acute appendicitis. 3. Ovarian cyst with twisted pedicle.

*Physical Examination.* The most important finding in the physical examination before rupture is the presence of a unilateral adnexal mass in the pelvis which may or may not be tender; the following percentage of cases showing unilateral masses are given by different authors, in their combined series, representing 1536 cases: Grier 52%, Scheffey et al 52%; Sellers et al 49%; Farrar 95%, Lavell 90%. It must be remembered that in some of these cases no pelvic examination was done because of the obviousness of the condition following rupture or it was felt such a procedure was dangerous.

The next most important physical finding is enlargement of the uterus. This was true in 85.55% of Urdan's series although in 20.45% of these the uterus was described as indefinite. However, Scheffey et al (82 cases) found this to be present in only 19.5%. Novak feels that in the average run of cases that the "enlargement of the uterus is usually slight or perhaps not discernible at all. On the other hand when the uterus is much enlarged, the existence of intrauterine pregnancy can reasonably be assumed."

Movement of the cervix and coincidentally the uterus, often elicits severe pain. Polak explains this as due to irritation of free blood in contact with the peritoneal covering of the uterosacral ligaments. Some authors lay great stress on this, stating that by merely placing the fingers behind the cervix and gently lifting it up, will cause the patient marked discomfort. Kennedy<sup>14</sup> states, "in ectopic, the cervix is more tender than the lateral mass, while in pus tubes the lateral mass is more tender than the cervix.

This one physical sign, cervical tenderness, means more to me than any information I acquire from pelvic examination." Novak states however, "the demonstration of a one-sided mass in the pelvis is little less than a sine qua non in the diagnosis of tubal pregnancy."

Chadwick's and Hegar's signs are sometimes present and if so, these findings should be given consideration but not by any means to the exclusion of other findings, for as Lavell has pointed out, "both of these are present in many other conditions including pre-menstrual congestion, and it is our opinion that they are not particularly important in ectopic." He also feels that tenderness on motion of the cervix is not a particularly important finding unless acute pelvic inflammation can be ruled out; however, if it can be ruled out, he considers the sign highly suggestive of ectopic.

Before rupture, abdominal examination per se is often not very informative although it should routinely be done before the pelvic. Tenderness, at this time is usually less than in appendicitis and pelvic inflammation.

The abdominal findings are, of course, wholly dependent upon the underlying condition: hemorrhage, peritubal hematocele, peritoneal irritation, etc. Where rupture has taken place there may be general or localized rigidity and tenderness is present in a large percentage of cases. With hemorrhage, dullness in the flanks may at times be demonstrated. Cullen's sign (bluish discoloration about the umbilicus) is at times present, but this is simply a sign which may be seen in any condition giving rise to a massive intra-abdominal hemorrhage. Abdominal distention is sometimes seen where there is a great amount of blood in the peritoneal cavity.

#### *Diagnostic Aids.*

##### 1. Ascheim-Zondek Test:

This is probably the outstanding laboratory procedure that obtains today to clinch our clinical impression. Ascheim himself states "The test can be expected to be positive in tubal gestation when the embryo is alive, or not later than ten days after its death." When done, according to some of the latest modifications, it can be completed in 24 hours.<sup>15</sup>

##### 2. Curettage and Decidual Casts:

Some authorities believe that 50% of all cases expel either a large fragment or small disintegrated pieces of a decidual cast. The patient

may speak of it as "a piece of skin," or call the physician's attention to it simply because of its different appearance from that usually seen in a menstrual discharge. Whenever this can be recovered and studied, histologically, decidual cells and glands of pregnancy can often be found. Likewise curettage may show chorionic villi or syncytial cells.

### 3. Sedimentation Time:

The same value holds true for the sedimentation test as does any other laboratory procedure, namely that its interpretation should be regarded only in the light of clinical findings. Considerable difference of opinion obtains in regard to the interpretation of this test: several authorities feel that with a sedimentation time below 30 minutes, pelvic inflammation should be strongly suspected; all are agreed that a rapid sedimentation time means infection somewhere in the body. One case in a large series where the sedimentation time was most rapid, a large infected hematocele was found.

### 4. Posterior Colpotomy:

This is a valuable procedure in certain instances, but it is not without danger. Introduction of infection into what would otherwise be a sterile field, in case laparotomy is imperative, should always be borne in mind, as should also the possibility of increasing hemorrhage. However, when the cul-de-sac is filled with a soft, easily accessible mass and doubt exists as to whether one is dealing with an abscess or a hematocele, colpotomy is probably justified. On the other hand, failure to obtain blood in a suspected ruptured ectopic may lead to a false impression, as in an early case where there may be only a small amount of bleeding into the cul-de-sac.

### 5. Temperature, Pulse and Respiration:

This is usually normal before rupture unless infection is present, as in infected hematocele. Occasionally a small fresh hemorrhage is accompanied by a temporary rise which soon reverts to normal. If the hemorrhage is massive, shock symptoms supervene with a weak thready pulse, low blood pressure and the temperature may fall to low levels.

### 6. Blood Studies:

Grier in reporting 50 cases from the Evanston (Ill.) Hospital, states, "The leucocyte count has been the most valuable laboratory finding. The hemoglobin readings were not as low as the

pallor of the patient would indicate." He believes that since 39% of these cases showed a leucocyte count of over 15,000, it is quite indicative of free blood in the peritoneal cavity. Farrar and Hendry agree with Grier's conclusion. Masson states that the larger the amount of free blood, the higher the polymorphonuclear count.

Ricci and Di Palma<sup>16</sup> have observed that leucocyte counts between 20,000 and 40,000 do not exclude ectopic in favor of pelvic inflammatory disease, for in ruptured ectopics the white count may rise with each outpouring of blood into the peritoneal cavity. Schumann states that the white count is due entirely to peritoneal irritation set up by the contact of free blood with its cells.

No mention is made in any of the literature as to the value of the Schilling differential counts.

In regard to the red count and hemoglobin, it has been found that before rupture neither is much reduced, unless there has been considerable uterine bleeding previously. Hemoglobin readings may at times be misleading when taken after suspected hemorrhage, as the percentage does not apparently decline with the blood volume loss. Oftentimes the hemoglobin readings do not drop until 24 to 72 hours after hemorrhage.<sup>6</sup> Ricci and Di Palma have made nearly the same observations. They explain this discrepancy as due to the fact that not sufficient time elapses before the absorption of an adequate amount of fluid lymph from the tissues into the circulation to dilute the remaining intravascular blood. They further state that the red blood count gives only an accurate index of the proportions between the fluid and the corpuscular elements of the blood remaining. Their observations are well substantiated by two series of cases: in one group of nine in which all of the patients were in shock and seen within 6 hours of the onset of severe symptoms the red blood count ranged from 3,500,000 to 4,900,000. In all the cases large quantities of free and clotted blood were found at operation. In their second series of 14 cases in which the duration of the colicky pain was present from 4 days to 4 weeks, the red count varied from 2,650,000 down to 1,000,000. Likewise in all these cases blood was found but much was clotted and many of the clots had apparently been present for some time.



## CONCLUSIONS

1. The death rate as a result of ectopic gestation is high when one considers the small number of extrauterine pregnancies in relation to normal pregnancies.

2. Extrauterine pregnancy may take place at any time during the child-bearing period. Previous salpingitis, primary sterility, previous abnormal pregnancies, previous pelvic operations, diverticulae of the tubes, all are important factors in the etiology of this condition.

3. The arrested ovum may terminate as 1. early tubal abortion; 2. late tubal abortion; 3. rupture through the tubal wall resulting in a massive hemorrhage; 4. rupture between the layers of the broad ligament to form an intraligamentous hematocele; 5. interstitial pregnancy with or without uterine abortion; 6. true abdominal pregnancy.

4. The menstrual history is exceedingly important and yet may often be misleading, but a patient, careful questioning will usually bring out some variation in the menstrual sequence.

5. Pain is present in nearly all cases at some time during the course of the pregnancy and is apparently a somewhat more constant symptom than bleeding.

3. Adnexal disease, incomplete abortion, ovarian cyst, appendicitis, are among the conditions most commonly confused with ectopic pregnancy.

7. Unilateral adnexal mass, enlargement of the uterus, tenderness of the cervix on movement are among the most important physical findings before rupture.

8. The Aschheim-Zondek test, curettage and decidual casts, sedimentation time, pulse, temperature, respiration, blood pressure determinations, and blood studies are the best diagnostic aids.

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## THE INCREASE IN MENTAL DISORDERS SPECIAL REMARKS ON MANIC- DEPRESSIVE GROUPS

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The purpose of this paper is to briefly bring before the eyes of the medical profession the vast problem confronting them in regards to the prevention and treatment of mental disorders.

There has been an enormous increase in the past years of patients suffering from mental disorders, and there are more of these than from all other diseases combined. This, of course, includes those organically afflicted, as in paresis and other brain lesions.

In Illinois, the hospitals caring for the insane had a population in 1868 of 493;<sup>1</sup> forty years later (1908) a population of 9,985; in 1933 24,998. The population on February 1, 1934, increased to 25,809. These figures do not include feeble-minded or prisoners. The population of feeble-minded in 1914 was 16,402 and in April, 1933, it had almost doubled, 31,367. From the figures mentioned above we can readily see that mental disorders are on the increase and it is calculated that this population will increase yearly by over 600. Illinois ranks second with its population of mental disorders.

In 1931 the Federal census of mental patients showed 305,315 or 293.2 per 100,000 were resi-

dents in mental hospitals,<sup>2</sup> an increase of 37,698 since 1923. These figures do not include the inefficient, the shiftless, the delinquents, the criminals and prostitutes among whom mental defects and mental disorder are very common.

Much has been said of late about the thousands of boys who have been living the lives of hobos during the past three or four years.<sup>3</sup> With no employment, no opportunity for advanced schooling, with a natural desire for adventure, the ranks of this type of parasitism have been definitely increased. Many of these boys will come back home and live normal lives. But those lads with a definite neurotic tendency will go on and on in this asocial or antisocial method of living because it offers them a measure of irresponsibility. Many of them will end up in crime. Add to this multitude of social parasites the racketeer, the prostitutes, the grafter and scheming promotor who works within the law, the unethical professional man, the charlatan and similar types and you have a definite group of neurotics whose ever increasing members are a challenge to the newer knowledge of mental health and mental methods.

"With a World War in the not too distant past, an age of machinery and mass production, the mad pursuit of material wealth, and four years of economic distress, the complexities of the modern civilized life have created a lengthening shadow of a disaster unparalleled in history that can be averted only by the use of our present knowledge of mental disease, its prevention and cure. We are equipped to fight epidemics of typhoid, diphtheria and smallpox. We know how to prevent rabies, tuberculosis and syphilis. A score of other diseases are under our control, although they still offer us problems. When we combine the victims of malaria, scarlet fever, pneumonia, cancer, heart disease and all other diseases which afflict the citizens of this State, they are but a handful compared to the countless thousands that are headed toward mental disease in our lifetime."

This problem is stupendous and has never been adequately tackled and the problem of prevention until recently not at all. In the matter of institutional accommodation there is an urgent need for addition and extension.

The question arises whether we are dealing with the problem in the best way; whether it is

not steadily growing greater because the right measures are taken too late.

We could render unnecessary much of the misery, money spending and machinery which is necessary if we treated early the causes of mental disorders and its companions and consequences, criminality, vice, alcoholism, poverty, unemployment and the like. This goal can only be reached by an intense and systemic study throughout the State and country in a well organized scheme and with all the means at our command of the causation of mental disorders. Many organizations in mental hygiene and child hygiene in this country are doing a great deal towards the prevention of mental disorders. The civil works projects have aided materially in preventing mental disorders, crime, etc., by making idle minds busy.

Heredity plays a part in contributing toward mental disorders. It has been impossible to obtain definite data. Human families with their long intervals between generations and the small number of their members do not lend themselves to the studies of heredity. Moreover it is often necessary to collect data on a hearsay basis only. Such terms as "nervousness," "irritability," "headstrong," and so on, especially given by lay persons can have little value. Clinical experience forces the conclusion that heredity is of considerable importance. It is common to find mental disorders in the immediate ancestors of schizophrenics, although more usually not in the direct line. Heredity plays a part in about 17% of this particular group. The manic-depressive group often has a family incidence. Studies in this group made by Farr and Smith<sup>4</sup> show that 76% of patients have relatives in which tainting with temperamental and various other deviations from the normal were prominent. C. A. Bonner,<sup>5</sup> during a two-year period beginning with June 1, 1928, studied 100 manic-depressive cases, 63 women and 37 men at the Danver State Hospital and found heredity positive in 50 cases tending to support the text-book statement in regard to heredity; 50 cases occurred from causes unknown. He listed the following psychogenic factors as causative agents: Friction or discord in the family, 25 cases. Reaction to financial situation such as business failures, loss of savings in stock market crashes, etc., or unemployment, 15 cases. Recent death in family, 9 cases. Serious anxiety for member of family, 16 cases. Disap-



pointment in a love affair, 6 cases. Severe emotional stress from other causes such as occupational mal-adjustment, 7 cases. Five cases, all women, succumbed to situations mildly unpleasant, mere petty annoyances such as most of us have to face and tolerate nearly every day.

In the study of pathological changes<sup>6</sup> in the various organs no definite conclusions have been made due to the small amount of material for study and the advanced age at which death occurs.

Briefly the symptomatology is characterized by three main symptoms (a) elated though unstable mood, (b) flight of ideas, (c) psychomotor activity.<sup>7</sup> These basic symptoms, although present in every case, are to be considered as a background or setting for the development of other symptoms. In some cases the elated mood may predominate clinically, whereas in the other cases it may be the restlessness or overtalkativeness. Other features usually complicate the picture and irritability, suspicion, a clouding of consciousness with delusions, hallucinations, disorientation and lack of insight may all appear. Such symptoms as irritability, suspicion, hallucinations, etc., are usually transitory; occurring at the height of the illness are not of the same significance as they would be if they occurred in a setting of clear consciousness.

Prognosis:<sup>7</sup> Manic-Depressive Psychosis has on the whole a favorable prognosis. This is especially true for the single attacks and the intermittent types which occur so frequently in the young people during the second and third decades. Although ultimate recovery is not often in doubt, there is little to guide us regarding the duration of the attacks.

Treatment:<sup>7</sup> Early attacks of either mania or depression may be managed satisfactorily under home conditions, but if the attacks are repeated their duration is apt to become prolonged, care and management become complicated, and recourse must be had to institutional treatment.

It is true, irrespective of what is done, many cases get well of their own accord, while, on the other hand, other cases tend to have recurring attacks, or else never entirely clear up. There is no specific form of therapy, because each form is different from every other, and must be treated on its merits. The essential principle is to reduce life to a very simple level. No special demand

should be made, but the patient should be gradually encouraged to acquire satisfactory interests and habits, and to build upon these:

Care of the general health.

Nutritious diets.

Rest, especially at night.

Supervision at all times to prevent harm to himself or others.

Artificial feeding when patient is so depressed that he refuses food.

Hydrotherapy—continuous baths. Douching and spraying are helpful.

Sedatives are given when necessary, such as paraldehyde, bromide and chloral and sodium amytol.

Psychotherapy.

When patient shows improvement occupational therapy aids materially in their recovery.

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#### QUACKERY IN THE TREATMENT OF CATARACT

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People in general believe what they like to hear, and they like to hear what they believe. None of us wants to have a cataract; indeed we would do almost anything to prevent having a cataract; so when our neighbors tell us that eating certain foods, or taking certain medicines or saying a certain ritual; or keeping a rabbit's foot in our pocket, or rolling or cupping our eyes will ward off cataracts, we are apt to fall for it. It seems so simple to do these things. A few years ago certain serums were guaranteed to dissolve cataracts. At present our quacks are vitamin-conscious.

Let me illustrate by telling a true story. A few weeks ago a woman consulted one of the prominent eye physicians in the city because she had been told there would have to be an imme-

diate operation for cataract. She had been taking oil of carrots to dissolve the cataract. The eye physician on careful examination found that with a slight change of glasses she had almost perfect sight. She could even read the fine print in the daily papers. She did have a sort of cataract—the kind that exists for many years practically unchanged. It was not interfering with her vision, and it might not materially interfere with her sight for another ten or twenty years. All she needed was the proper glasses. She did not need oil of carrots or any other special food or medicine.

The person who told her she had a cataract and would have to be operated on at once was a quack; her cataract did not interfere with her sight; but even if it had it would not require *immediate* operation. It is very rare indeed to find a cataract requiring immediate operation. There are a few eye conditions which do occasionally need immediate surgical intervention, but very seldom does cataract fall in this group. Therefore, this man was either quite ignorant of the condition about which he advised this woman, or else he was malicious.

Let me cite another instance. A man examined seventeen years ago was found to have a partial cataract in each eye. It was the same sort of cataract as in the first case. These cataracts have not changed in the least; and his sight is practically the same now as seventeen years ago. He has lived a normal life, seldom takes medicine, says no special rituals, does not roll or cup his eyes and eats a good general diet.

You ask, "Is there more than one kind of cataract?" Yes, there are several kinds. A few babies are born with cataracts. They may be merely faint spots or faint clouds, or they may be more dense. Some are even so dense that only light is perceived. The great majority of such cataracts may be operated on and sight may be restored to these little patients, so that they can run, play and go to school with other youngsters.

There is a type of cataract which develops in youth, and a type also which develops in later life. Occasionally we find families in which at a certain age cataracts develop in almost every member. A blow on the eye with a fist, a baseball or a stone may cause a cataract. When a piece of metal penetrates the eye it may touch the lens and injure it. In many industries all

men exposed to flying particles are compelled to wear goggles. This has saved thousands of eyes. Certain rays of light such as come from very hot furnaces can cause cataract. "Glass blowers" cataracts are of this type. Proper goggles now afford 100% protection to such workmen.

Some diseases interfere with the normal nourishment of the crystalline lens; it thus loses its transparency; that is, it becomes a cataract. In uncontrolled diabetes and in parathyroid deficiency we often see cataracts.

Occasionally a condition is called a cataract which is not that at all. For example, when a skin grows over the front of the eye it is erroneously termed cataract by some people. What then is a cataract? You have heard of the eye being compared to a camera? In the front part of the eye there is a diaphragm called the iris, in the center of which there is a hole called the pupil. As the diaphragm of the camera can be regulated so as to admit more or less light, so the pupil can be made larger or smaller for the same reason. Back of this iris is a crystal clear lens which focuses the light that comes through the pupil. The light is thus focused on the retina just as it is focused on the plate or the film of the camera.

When the lens is not crystal clear, but is a little cloudy, or has spots on it, we call it cataractous. The spots may be in the center or way out at the edge where they are covered by the iris. In the latter case the cataract could not be found unless the pupil was widely dilated; and of course, such a cataract could exist for many years without interfering in the least with sight.

If a person has such a cataract all he needs to do is to have his glasses changed when necessary; sometimes this is every two years; sometimes oftener and again sometimes not as often. Suppose Mr. A. has such a cataract; he has been told of it and he has at once pictured himself as about to become blind; he may even see himself walking down the street with a cane, a tin-cup and a dog. His friends advise him to eat carrots, or to say "Every day in every way I am getting better and better." When he finds that his sight does not become worse after a few weeks or months or even years, he is convinced that the treatment is beneficial. Of course, he will tell his friends that his own particular regime keeps cataracts from becoming worse; he may



even generalize and say all cataracts may be controlled by this method.

Is there, then, nothing that one can do to prevent cataracts or to stop them from advancing if and when they begin to advance? Indeed there is. But it is not mysterious nor is it a secret. It is what everyone knows.

Keep well. Be temperate in all things. Take exercise in moderation. Do not worry; the world will move even smoother if you do not worry. Sleep well. Eat a general diet of fruits, vegetables, salads, meat, fish, etc.; unless your physician has prescribed a special diet for you. Let your physician keep you well; that is better than having him try to cure you once you become sick. He can often detect the earliest symptoms of a disease and abort it before it has become established. A stitch in time saves nine.

The teeth also need regular attention, especially if you have any dead teeth. We have some reason to believe that infected dead teeth may be one of the causes of cataract.

When it comes to your eyes, remember you have only two of these priceless possessions. Entrust them only to an eye physician. Make a confidant of him. He can help you. He has spent years in medical training and then has spent additional years in becoming familiar with all sorts of eye conditions. He knows the relation of the eyes to the other organs of the body. He knows how and why weakness of the various organs of the body and advancing age make their marks on the eye. He knows what worry will do to eyes and what changes overwork and fatigue will cause. He can tell whether certain symptoms are due to so-called "nerves" or to trouble in the eyes themselves. He alone can make a reliable diagnosis of complicated conditions of the eyes. His tests require time and patience.

I have spoken mainly of the kinds of cataracts that do not advance or advance very slowly. Any treatment used for them will be given credit that is not deserved. Some cataracts advance more rapidly. If there are no complications it is the rule to wait until they are ripe or nearly ripe before operating. This rule has been established as the result of long experience of thousands of eye physicians. A quack will brush a rule lightly to one side if he thinks he can advance his own interests in so doing. Seek reliable advice.

122 So. Michigan Blvd.

## TRICHINOSIS OF MAN A COMMON INFECTION

In order to obtain more definite data relative to the incidence of trichinosis, William A. Riley and Charles H. Scheifley, Minneapolis (*Journal A. M. A.*, April 14, 1934), outlined a project involving the examination of diaphragm muscles from the cadavers used in the dissecting rooms of the University of Minnesota Medical School, similar examination of necropsies representing a more normal population, and extension of earlier studies on the occurrence of the encysted worms in local hogs, rats and other animals. Their examinations of 117 cadavers revealed twenty cases of trichinosis, in subjects who were never recorded as exhibiting any symptoms of the infection. This makes for the group an incidence of 17.9 per cent. Their series from necropsies is as yet too limited to be significant. A rough classification on the basis of severity of the infestation was made. The classification is not intended as an index of clinical symptoms, although it is certain that there must have been definite illness in the half dozen cases classed as "severe." In no instance was there any information to indicate that there had been any suspicion of trichinosis. The most heavy infestation, exhibiting some 350 cysts to the slide, was that of an Irishman, 86 years of age, who died of arteriosclerosis. The cysts were heavily calcified. Since no adequate treatment for the disease is known, it is evident that there is still abundant need for educating the public regarding the source of trichinosis and the simple means of protection that may be taken against the infection. Much would be gained also by the extension to small plants of the federal regulations regarding the preparation of sausages and other pork products of a kind that are customarily consumed without being cooked.

## TINTED LENSES: THE PRESENT DEAL

W. W. Coblenz, Washington, D. C. (*Journal A. M. A.*, April 14, 1934), states that, while during the past two years there has been some improvement in the fairness of the claims made in the literature advertising tinted lenses, there is still a long way to go in the presentation of relevant facts as distinguished from unproved theories. It is a safe guess that these advertisements are not seen by many indiscriminating laymen but are read mainly by trained ophthalmologists. It would therefore be a sad reflection on the intelligence of such readers to assume that they accept the "ballyhoo" part of the advertising as proved facts of importance in their profession.

## NEW ONE FOR THE BRAIN TRUST

"An economist," says the *Omaha Journal-Stockman*, "is a man who knows a great deal about a very little; and who goes on knowing more and more about less, until finally he knows practically everything about nothing; whereas, a professor, on the other hand, is a man who knows a very little about a great deal and keeps on knowing less and less about more until finally, he knows practically nothing about everything.—*Leavenworth Times*."

## Marriages

MARSHALL QUENTIN BAKER to Miss Belle Claire Good, both of Chicago, June 24.

EDWIN G. QUATTLEBAUM, JR., to Miss Betty Cummings, both of Rockford, Ill., May 19.

SIMON S. RUBIN, Chicago, to Miss Anna Chesney of Philadelphia, May 25.

SIMON YOUNG SALTMAN, Chicago, to Miss Goldye Lazarus of Brooklyn, July 1.

## Personals

Dr. Robert E. Schlueter, St. Louis, addressed the Clinton County Medical Society at Breese, June 13, on cancer of the breast.

Dr. Charles P. Emerson, Indianapolis, discussed oriental medicine before the Peoria City Medical Society, June 5.

Dr. Charles H. Phifer was installed as president of the Chicago Medical Society at its recent annual election, and Dr. Julius H. Hess was named president-elect.

Dr. Albert E. Luckhardt was recently appointed associate clinical professor in the department of medicine at Loyola University School of Medicine.

Dr. George K. Fenn was elected president of the Chicago Society of Internal Medicine at its annual meeting, recently; Dr. Walter L. Palmer, vice-president, and Dr. Clarence F. G. Brown, secretary.

Dr. Edward L. Cornell was named president-elect of the Chicago Gynecological Society, June 22, and Dr. Irving F. Stein was installed as president. Dr. Charles Edwin Galloway is secretary.

Dr. Logan Clendening, Kansas City, was the guest speaker at the eightieth anniversary celebration of the McLean County Medical Society in Bloomington, May 8; his subject was "Historical Medical Books, Paintings and Places."

Speakers before the Whiteside County Medical Society in Prophetstown, June 26, were Drs. Walter H. Nadler and Merritt Paul Starr, Chicago, on diabetes and control of edema in congestive heart failure by diuresis, respectively.

Dr. Harry L. Huber has been promoted to associate clinical professor of medicine, Division of Biological Sciences, University of Chicago, effective July 1. Dr. Rudolph Schindler,

Munich, has been appointed visiting professor of medicine in the division.

Dr. William Allen Pusey delivered the Prosser White Oration before the St. John's Hospital Dermatological Society, June 27, at the Royal Society of Medicine, England; his subject was "Disease, Gadfly of the Mind, Especially the Stimulus of Disease in the Development of the Mind."

Dr. Francis L. Lederer, who has been associate professor and acting head of the department of rhinology, laryngology and otology, University of Illinois College of Medicine, has been appointed professor and head of the department to succeed Dr. Norval H. Pierce, who is now professor emeritus.

Dr. Haim I. Davis, professor of psychiatry at the University of Illinois College of Medicine since 1926, has been made emeritus professor, effective September 1. Dr. Davis has been requested to continue with his teaching, however. He has been associated with the school since 1908.

Dr. Roy Sexton, Streator, received the merit award of Northwestern University Alumni Association on "illumination night" in Evanston, Ill., preceding the annual commencement exercises, June 15. The award is a certificate and is given annually to alumni for "worthy achievement which has reflected credit upon their alma mater."

## News Notes

—The Institute of Medicine of Chicago is again offering the Joseph A. Capps Prize of \$500 to graduates of Chicago medical schools who have received the degree of doctor of medicine during the year 1932 or thereafter. The prize will be awarded for the most meritorious investigation in medicine or in the specialties. Investigation in the fundamental sciences will be considered also, provided the work has a definite bearing on some medical problem. Manuscripts must be submitted to the secretary of the Institute of Medicine of Chicago, 122 South Michigan Avenue, not later than December 31.

—Opportunity will be given to adults for chest examinations to detect heart impairment as a part of the program of the state health department at the State Fair, August 18-25, in Springfield. The examinations will include electrocardiograms in as many cases as practicable. All



volunteers, so far as facilities permit, will be tested for blood pressure, height, weight and perhaps one or two other factors, such as lung capacity. Facilities for taking roentgenograms of 500 young persons between 12 and 19 years of age to detect early tuberculosis will also be available, those from families with a history of the disease to be given preference. Well babies and children will also be given medical examinations.

—Dr. Arvid Wallgren, professor of pediatrics and chief of the Children's Hospital at Gothenburg, Sweden, delivered the Theodore B. Sachs resident lectures in tuberculosis of the University of Illinois College of Medicine, June 6-7. These lectures were established at the college for a five year period by the Chicago Tuberculosis Institute. During the reunion of the alumni of the college, Dr. Edward W. A. Ochsner, professor and head of the department of surgery, Tulane University School of Medicine, New Orleans, gave the alumni memorial lecture on "Postoperative Care in Abdominal Surgery Based on Clinical and Experimental Observations."

—There were 2,177 deaths from automobile accidents in Illinois during 1933 as compared with 2,104 in 1932, giving a rate of 28.5 for the state as a whole as against 27.5 per hundred thousand of population in 1932. The rate for the state exclusive of Chicago was 28.8, and for Chicago, alone, 28. According to the *Chicago Tribune*, at a recent meeting of the Illinois Conference on Highway Safety Legislation, which is sponsoring drivers' license and financial responsibility laws to reduce accidents, J. S. Baker, engineer for the National Safety Council, estimated that accidents of all descriptions have increased about 50 per cent in the first few months of this year as compared with the corresponding period of 1933. He also declared that the number of accidents is growing faster in rural than in urban areas.

—Physicians are asked to be on the alert for patients with symptoms suggestive of typhoid and amebiasis which might result from water consumed at the fire in the Union Stock Yards, May 19. On June 25, thirty-three persons ill with typhoid had been reported to the city board of health. It was pointed out that these persons drank from cattle troughs and almost any place they found water available. The city water supply was and is safe, and only certain persons of those who drank contaminated water became in-

fectured. Eighteen suspected typhoid cases were being investigated at the time of this report; most of these persons also drank water at the stockyards. Following the fire, eight of the thirty-three patients were ill with diarrhea, cramps, nausea and fever for a day or two and recovered. Later, however, they became ill with typhoid. Definite onset dates of these thirty-three cases range from June 1 to June 16. Physicians are urged to avail themselves of the facilities of the laboratory of the health department when they encounter a case they suspect of being either amebiasis or typhoid.

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## Deaths

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FANNIE EMANUEL, Chicago; Chicago Hospital College of Medicine, 1915; aged 61; died, March 31, of diabetes mellitus.

PAUL HAYS FITHIAN, Danville, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1890; Rush Medical College, Chicago, 1891; member of Illinois State Medical Society; aged 68; died May 22, in Kankakee, of cerebral hemorrhage.

MARTIN McMANN, Palmyra, Ill.; Missouri Medical College, St. Louis, 1885; aged 75; died, April 29, in Peoria, of chronic myocarditis.

FRANK ROY MORTON, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; past president and secretary of the Chicago Medical Society; fellow of the American College of Surgeons; chief surgeon to the Standard Oil Company of Indiana; on the staff of the Henrotin Hospital; aged 53; died, June 16, in Joliet, Ill., of coronary thrombosis.

VERNON CURRY MORTON, Rantoul, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1897; on the staff of the Mercy Hospital, Champaign; aged 58; died suddenly, June 19, of angina pectoris.

NEIL LAWRENCE O'HERRIN, Oak Park, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; aged 58; died, June 10, of heart disease and diabetes mellitus.

BRUCE DOWNING PARRISH, Mattoon, Ill.; Louisville (Ky.) Medical College, 1889; aged 67; died, April 5, of heart disease.

THOMAS ROBERT PLUMER, Trivoli Ill.; Northwestern University Medical School, Chicago, 1930; aged 28, was killed June 24, in an airplane accident.

GEORGE AUGUSTUS POST, Chicago; College of Physicians and Surgeons of Chicago, 1889; aged 74; died, April 1, of chronic myocarditis.

CARMEN FRANK RUSSO, Chicago; University of Illinois College of Medicine, Chicago, 1931; aged 32; died, May 25, of pulmonary tuberculosis.

JOHN FLETCHER TAYLOR, Buda, Ill.; Rush Medical College, Chicago, 1895; served during the World War; aged 59; died, March 1, of pulmonary carcinoma.

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Medical Director

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.....  
.....  
.....

IMS-34

ILLINOIS PERIODIC PHYSICAL EXAMINATION RECORD\*

Case No.....

Name ..... Age..... Height ..... Weight..... usual.....  
 present.....  
 normal.....

Temp. (3 min.)..... Pulse Rate { Seated (before exercise) .....  
 { Standing (before exercise) .....  
 { 60 sec. after exercise (sufficient to increase pulse to 110).....

Bl. Pres.: Sitting { Sys..... Lying { Sys.....  
 { Dias..... { Dias.....

Hearing { R..... Vision { R.....  
 { L..... { L.....

Urine: Color..... Reaction..... Sp. Gr. .... Alb..... Sugar.....  
 Microscopic.....

1. (Standing)
  - (1) Posture: erect.....stooped.....Lateral curvature .....
  - (2) Superficial glands .....cervical.....axillary .....inguinal.....epitrochlear.....
  - (3) Abdomen: flat .....Pendulus .....
  - (4) Arms .....defects .....
  - (5) Legs .....big veins.....scars.....
  - (6) Feet: flat .....painful .....deformed.....
  - (7) Skin .....Hands .....
  - (8) Nutrition .....Hernial rings .....
  - (9) Chest: expir. ....inspir.....Romberg .....
2. (Sitting)
  - (1) Scalp .....Patellar reflexes .....
  - (2) Eye reflexes .....to light .....to distance .....
  - (3) Nose: conformation.....air passages free .....obstructed .....discharge.....
  - (4) Teeth: caries.....devitalized.....crowned .....
  - (5) Gums: healthy.....retracted.....inflamed .....
  - (6) Tongue: clean.....coated.....moist .....dry .....
  - (7) Pharynx: ulcers .....scars .....tonsils .....
  - (8) Ears: conformation .....discharge .....
  - (9) Heart: locate apex (measure from mid-line—state interspaces).....character of sounds.....
  - (10) Lungs: abnormal findings.....
3. (Lying)
  - (1) Abdomen: palpation .....tender.....tumors .....
  - (2) Liver: percussion .....tender.....palpable .....
  - (3) Spleen: percussion .....tender.....palpable .....
  - (4) Kidneys: palpable .....tender .....
  - (5) Rectum: inspection .....digital findings .....
  - (6) Male Genitalia .....
  - (7) Female Genitalia and pelvis.....
4. Summary: defects of function and structure and errors of habit.....
5. Advice given to the patient.....

\*Prepared by the Illinois State Medical Society.  
 Copies of this physical examination record may be secured from Doctor Harold M. Camp at Monmouth, Illinois, or the Educational Committee, Illinois State Medical Society, 185 North Wabash Avenue, Chicago.



## HISTORY

(This side to be filled in by the person to be examined)

1. Name ..... Country of birth.....Date of birth.....
2. Address .....Race .....
3. Single, married, widowed, divorced.....
4. Occupation .....
5. How often have you changed your work?.....Why? .....
6. Is your work dangerous or unhealthy?.....
7. Is it indoors or out?.....
8. Is it light where you work?.....Dark?.....Dusty? .....Smelly?.....Noisy?.....Crowded?.....
9. At work are you usually seated, standing, or walking? .....
10. How many hours a day do you work?.....How many days a week?.....
11. Have you a room and bed to yourself?.....With window open?.....
12. What are your hours of sleep?.....Is your sleep restful?.....By what is it disturbed? .....
13. Where do you eat your meals?.....
14. How much time do you take for each meal?.....
15. Of what foods are you especially fond?.....
16. How much do you drink daily of:
 

Water .....	Tea .....	Soft drinks .....
Milk .....	Coffee.....	Alcoholic drinks .....
17. Do you eat candy?.....
18. Do you have a bowel movement daily without the use of drugs?.....What laxative do you use?.....How often? .....Do you have pain or bleeding with bowel movement?.....How often? .....
19. Have your menstrual periods been regular?.....
20. Have they interfered with your usual occupations? .....
21. Have pregnancies and confinements been free from accidents? .....
22. How often do you bathe?.....
23. What regular exercises do you take in addition to your work?.....
24. Do you share in church, social, political, club, or trade associations?.....
25. What are your pleasures or recreations?.....
26. Have you had any of the following diseases and at what ages?
 

Tuberculosis .....	Scarlet fever .....	Tonsilitis .....
Malaria .....	Diphtheria.....	Frequent colds.....
Rheumatism .....	Typhoid fever .....	Syphilis or gonorrhea.....
27. Do you have dyspepsia?.....
28. Do you have headaches?.....
29. Are you short of breath on going up stairs?.....
30. Do you catch cold easily and often?.....
31. Are you subject to sore throats?.....
32. Have you been vaccinated against small pox, typhoid fever, diphtheria?.....When? .....
33. Have you had any accidents, broken bones or surgical operations? .....
34. How often do you consult you dentist?.....
35. Are you as well at present as formerly?.....If not, why?.....
36. Do you remember any important diseases of your parents or family which may have affected your own health? .....

Remarks: .....

.....

.....

.....

.....

# FROM 10 TO 8

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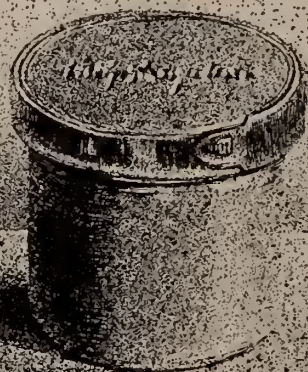
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**MERCK MANUAL OF THERAPEUTICS AND MATERIA MEDICA.** Sixth edition, fabrikoid. 1,379 pages. Rath-From an original two hundred and fifty-nine pages way, N. J. Merck & Company. Price \$2.00.

in 1899, the Merck Manual has grown to one thousand, three hundred and seventy-nine pages. The new edition has been entirely rewritten, yet maintains the characteristics of preceding editions which have made it a standard reference publication for physicians, students, pharmacists and nurses.

The therapy has been well outlined and has been approached, not only as a science, but as an art. For this purpose ripe experience has been culled for the practical application of what has been emphasized so frequently, namely, that the patient should be treated as well as the disease. This feature of combining "Faboir Faire" with medication an accessory regimen represents a departure from stereotype therapeutics.

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well known and favorably accepted publication, not only has been thoroughly rewritten, enlarged and revised, but contains many interesting new features. Unique and refreshing is the ready reference which may be made to this publication during busy professional hours, when neither time nor expediency permit of extensive library consultation. In the therapeutic portion of the more than thirteen hundred pages, two hundred and fifty-seven pathological conditions are presented alphabetically, with reference to etiology, diagnosis and therapy. Over two thousand prescription formulas chiefly covering official constituents with metric system equivalents, are provided. These are arranged in numerical sequence with reference to the use of each in the therapy. The discussion on therapy is an interesting departure in a book of this type and is a favorable contrast to the stereotyped presentations frequently encountered in more extensive treatises. There is the constant reminder that the patient as well as the disease is being treated, and that general regimen, diet and psychotherapy are not merely accessories, but frequently fundamentals in practical therapy. In line with contemporary medical progress, there have been included, many important subjects such as the reclassification of Anemia, the therapy of Myasthenia Gravis, the elucidating differential diagnosis of Uremia, Dyspnea and others, contained in the various tables. The chapters on Pneumonia, Pain, Diabetes, Nephritis, Shock and Collapse, in themselves, would justify the publication of this *vade mecum*.

**THE LABORATORY NOTEBOOK METHOD IN TEACHING PHYSICAL DIAGNOSIS AND CLINICAL HISTORY RECORDING.** BY LOGAN CLENDENING, M. D., ST. LOUIS. THE C. V. MOSBY COMPANY. 1934. PRICE 50c.

**THE SPASTIC CHILD.** BY MARGUERITE K. FISCHER. ST. LOUIS, MO. THE C. V. MOSBY COMPANY. 1934. PRICE \$1.50.

This book combined the character of a personal essay or autobiography with medical information and presents both with an honesty which in itself a rare quality. The work is a valuable contribution to medical literature.

**A MANUAL OF SOCIAL DISEASES FOR THE LAYMAN.** BY FRANKLIN H. CHURCH, M. D. SALEM, N. J. THE S. D. PUBLISHING COMPANY. 1934.

This book is designed to extend the scanty and inaccurate information of the general public to the importance and menace of the social disease problem.

**POSTURES & PRACTICES DURING LABOR AMONG PRIM-**



ITIVE PEOPLES. BY JULIUS JARCHO, M. D. WITH 130 ILLUSTRATIONS. PAUL B. HOEBER, INC. NEW YORK. PRICE \$3.50.

This work is to be considered a companion book to the author's earlier work "Pelvis In Obstetrics." It transmits to modern obstetricians the application of those postures and practices utilized to advantage by primitive peoples in coping with their obstetric problems. Modern scientifically interpreted adaptations of the more helpful methods used by primitive peoples may assist the general practitioner or obstetrician who finds himself confronted with a difficult case in an isolated community without the aid of modern obstetric facilities.

A PRACTICAL MEDICAL DICTIONARY. BY THOMAS LATHROP STEDMAN, M. D. TWELFTH, REVISED EDITION. ILLUSTRATED. BALTIMORE, MD. WILLIAM WOOD & COMPANY. 1933. PRICE \$7.00. INDEXED COPY \$7.50.

This edition contains about a thousand new titles, without counting several hundred new sub-titles; that is to say, the prolific medical jargon has grown to an average of more than one new word a day during the past three years.

The admission of so large a number of new words has necessitated the addition of 33 pages to the book.

In this revision are noted all the changes in the British Pharmacopoeia of 1932. The work is amply illustrated. 1222 pages. Bound in flexible fabrikoid. Thumb indexed. The work is very complete and up-to-date.

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THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 14, Number 3, (Mayo Clinic Number—June, 1934) Octavo of 221 pages with 70 illustrations. Per Clinic Year, February 1934 to December 1934. Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1934.

The contributors to this number are Drs. Adson, Allen, Atkinson, Balfour, Barber, Beaver, Bennett, Church, Counsellor Craig Dixon, Figi, Foor, Ghormley, Gray, Harrington, Havens, Henderson, Judd, Lillie, Lundy, Masson, Mayo, Meyerding, Moersch, New, Pemberton, Phillips, Priestly, Smith, Thompson, Voris, Waldron, Walters Watson Whitlock Woltman.

A PRIMER FOR DIABETIC PATIENTS, A Brief Outline of the Treatment of Diabetes with Diet and Insulin, Including Directions and Charts for the Use of Physicians in Planning Diet Prescriptions: By Russell M. Wilder, M. D., Professor and Chief of the Department of Medicine of The Mayo Foundation, University of Minnesota; Head of Section on General Metabolism, Division of Medicine, The Mayo Clinic. Fifth Edition Reset. 172 pages. Philadel-

phia and London: W. B. Saunders Company, 1934. Cloth, \$1.75 net.

MANUAL OF THE DISEASES OF THE EYE. BY CHARLES H. MAY, M. D. FOURTEENTH EDITION REVISED. WITH 376-ORIGINAL ILLUSTRATIONS INCLUDING 25 PLATES WITH 78 COLORED FIGURES. BALTIMORE. WM. WOOD & COMPANY. 1934. PRICE \$4.00.

This work is intended for students and general practitioners. The book has been again carefully revised and some chapters rewritten; there have been some additions. Some illustrations have been replaced, others have been deleted, and a number have been added.

THAT HEART OF YOURS. BY S. CALVIN SMITH, M. D. ILLUSTRATED. PHILADELPHIA, LONDON, MONTREAL. J. B. LIPPINCOTT COMPANY. 1934. PRICE \$2.00.

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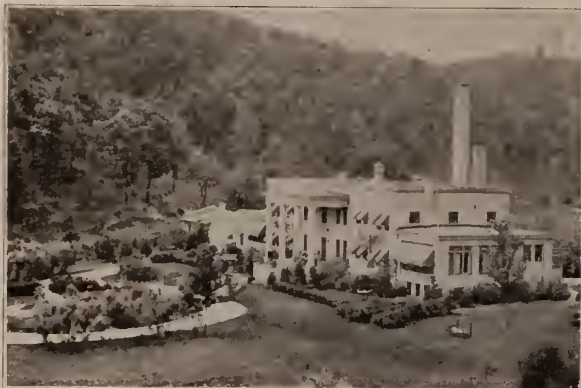


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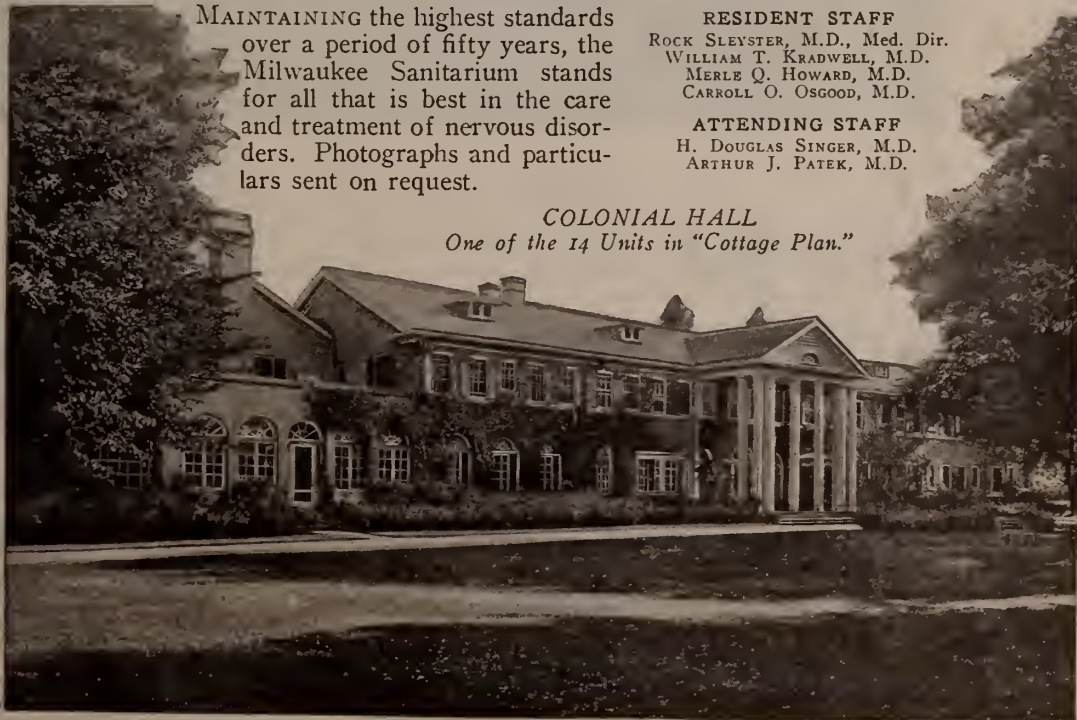
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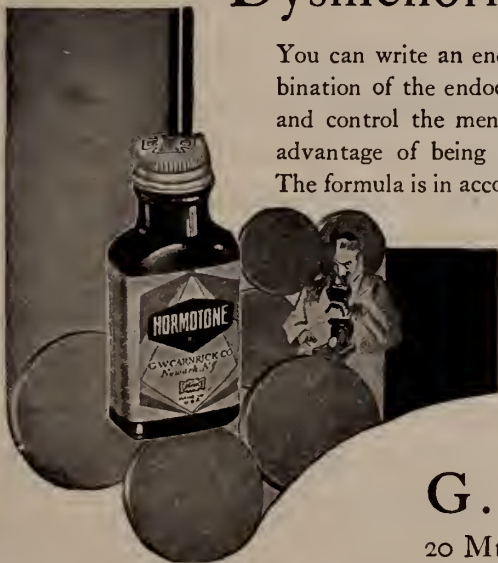
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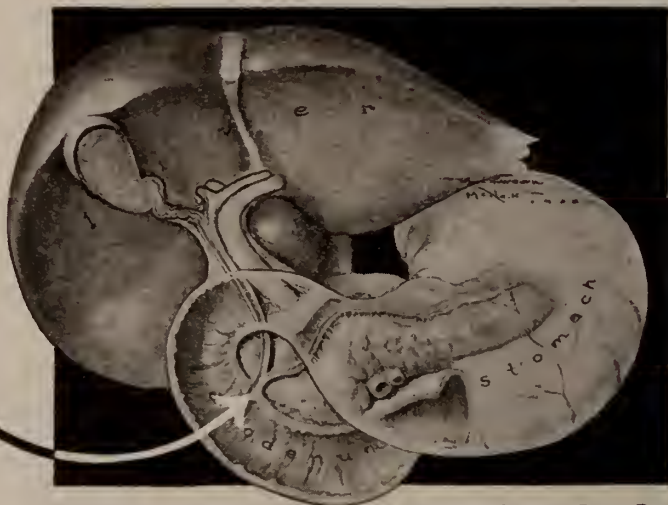


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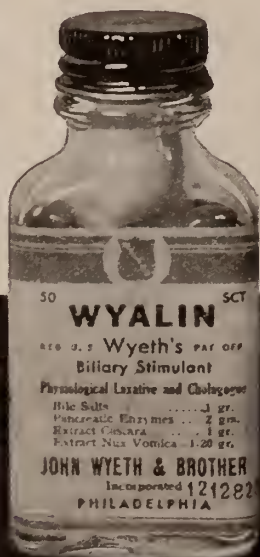
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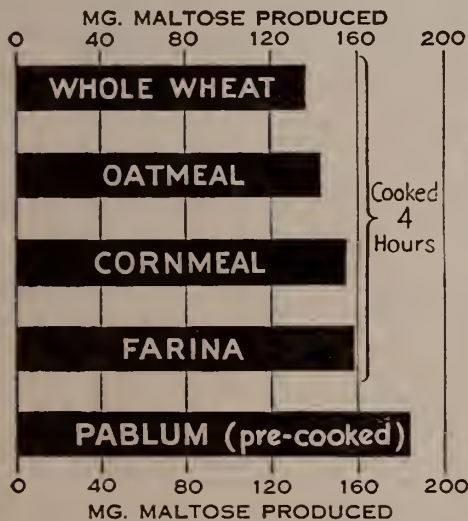
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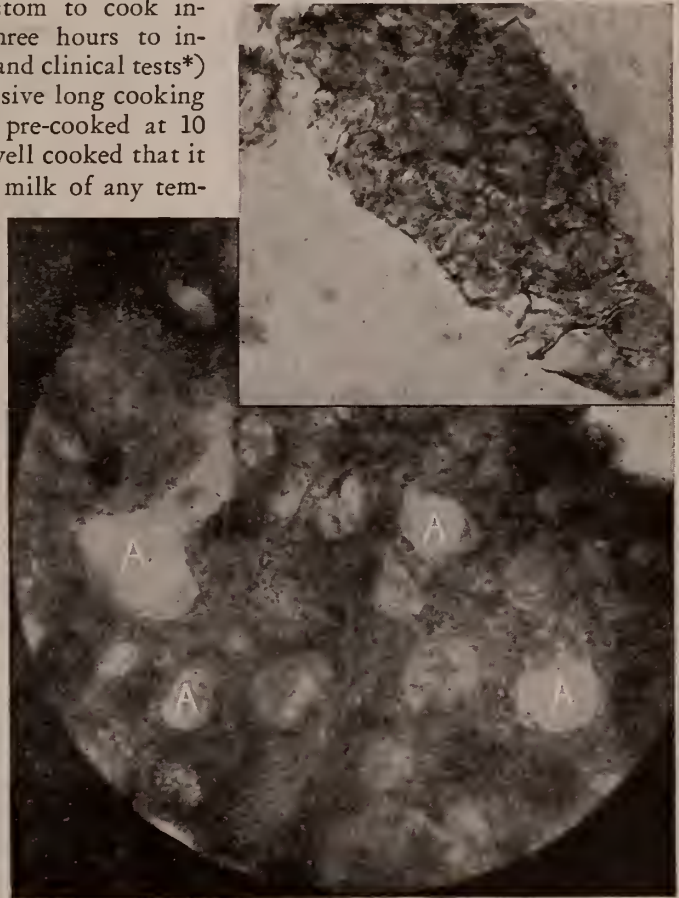
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\*Chart shows that maltose production is much greater for Pablum prepared with cold water than for other cereals cooked 4 hours. Ross and Burrill (Journal of Pediatrics, May 1934) conclude from this and from the total soluble carbohydrate formed that starch digestion of Pablum is more rapid than that of 6 other cereals.



140 X, STAINED

(INSET) 290 X, STAINED

*Large photomicrograph:* Pablum mixed with cold water—portion of large flake. Pablum flakes are honeycombed with "pores" or air-spaces (note light areas A). This porosity permits ready absorption of digestive fluids by the entire flake. No starch granules are visible—they have been completely ruptured.

*Inset:* Farina cooked  $\frac{1}{2}$  hour—clump of cereal composed of unruptured starch granules. Note density of clump and lack of porosity. Many starch granules, such as are present in raw cereal, remain unchanged in form.

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\*Reprint of Ross and Burrill paper sent on request of physicians.

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"Thus there is being developed scientific evidence to warrant the possibility that this method for the prevention of conception or birth control is sufficiently accurate to be dependable and at the same time psychologically, socially and esthetically sound."—Editorial, A.M.A. Journal, Feb. 10, 1934, p. 459.

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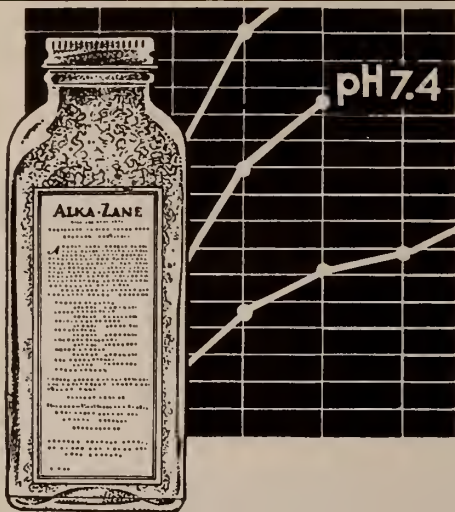
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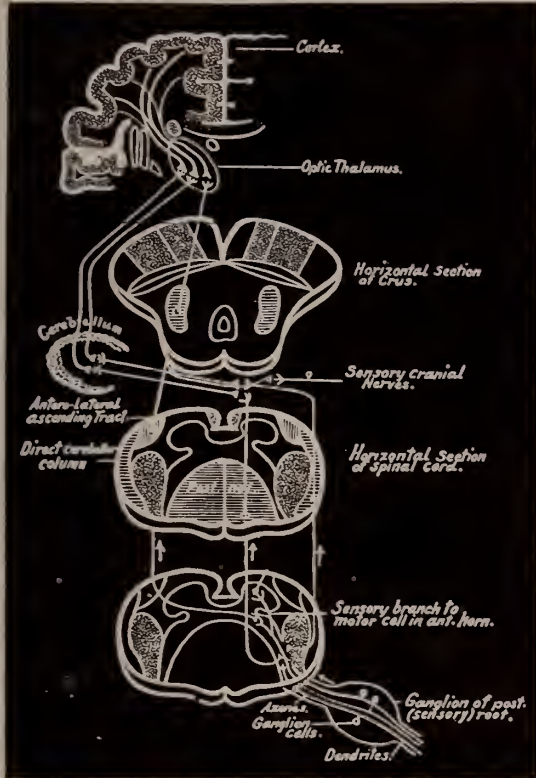
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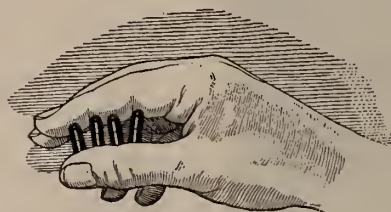
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# ILLINOIS MEDICAL JOURNAL

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THE ILLINOIS STATE MEDICAL SOCIETY

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## Editorials

### THE NATION MANACLED BY NARCOTIC PROHIBITION LAWS

We have repeal of a set of liquor laws that led to the most open debauchery in educated circles of which the country has record, but we stand as a nation, still manacled by *Narcotic Prohibition Laws* that impinge upon us an evil even greater, even more disastrous and even more insidious than did those of the prohibition of alcoholics. In each instance the medical profession is ultimately the goat.

Millions have been spent in the enforcement of the narcotic prohibition laws. Yet conditions are infinitely worse than they were before. Aply has it been written that the only persons who have benefited through our eighteen years of narcotic control are those political employes whose job it is to attempt enforcement of the laws that cannot be enforced and the bootleggers of the dope traffic. Narcotic control is demanded but narcotic control should lie in the hands of the medical profession who find in narcotics at once humanity's greatest friend and greatest foe, but who know how and when control should be exerted.

When the Narcotic laws were passed it was estimated that there were somewhere between 250,000 and 400,000 addicts in this country. In 1918 the United States Treasury reported that with only one-third of its questionnaires answered there were some 146,000 known addicts. There had been some 200,000 questionnaires sent out to persons known to have contacts with addicts. It is estimated that since then some 75% of an increase has been made in the number of addicts. The A. M. A. has given as statistics the facts that of today's known addicts some 47% are under 25 years of age and some 66% under thirty years of age.

*Police department records in cities totalling more than 14,000,000 population show that arrests of addicts made in 1932 revealed that 95% of these addicts have been made since the passage*



of the bill for Narcotic control. What sounds good in Congress and looks good in books doesn't always work out well in daily life.

Frequency of addiction as to occupation was found by federal questionnaires to be "Housewives, laborers, physicians, salesmen, actors or actresses, business men or women, prostitutes, pharmacists, dope peddlers, mechanics, merchants, gamblers, newspapermen and printers." At the start you see, dope addiction is a refined vice.

To fight the spread of narcotic addiction is the purpose of a high principled body incorporated as the International White Cross Anti-Narcotic League with headquarters at San Francisco.

Their crusade is based upon the known fact that a narcotic addict is suffering from a disease induced by the use of narcotics and that the cure for such a disease lies in the hands of physicians rather than lawmakers and that the control of dispensation and of drug supply should lie in a campaign based upon the ideas of an unified medical and public health problem, with the institution of a license system of dispensation if necessary under control of the U. S. Public Health Service. Uniform methods, elimination of profit and discouragement of production are further elements of this idea which at the outset demands such legalized control of narcotics as shall result in a complete divorce of narcotic dispensation from the criminal element of the underworld and a riddance of bootleggers of dope.

Since the profit in dope runs from 500% to 1000% and since several of the Oriental nations where the opium poppy flourishes are not bound by the convention of 1933 or any other convention, the answer to the present situation is both obvious and human.

Quoting from experts on the subject let it be noted that:

"Dr. W. E. Dixon, one of the leading physicians of England, Reader in Pharmacology, Cambridge University, made an investigation as to result of Harrison Act and in 1923 wrote: 'In December, 1914, the Harrison Narcotic Law came into existence—it had the support of both the public and medical profession—in effect, this law dictates the manner of practicing medicine. It has now been actively enforced eight years, and it is the universal opinion of those best able

to judge that it has signally failed in its purpose. The number of addicts and the amount consumed is as great or greater than in 1915—smuggling is rampant on the Atlantic and Pacific, from Canada to Mexico. The law has not altered the supply but the channel of distribution."

An editorial in the *Courier Journal*, Camden, N. J., 1925, reads: "The truth is, the government has not only failed to suppress the traffic but has helped it to grow by exaggerated and misdirected restrictions."

The years that have passed since these two statements were made have seen conditions grow steadily worse. An endless stream of humanity is going through our courts with new and young faces continually appearing—an endless stream of narcotics is crossing our borders, east, west, north, south by boat, airplane, motor car and in every other conceivable manner. It is being smuggled by the ton instead of ounces and pounds as it was only a few years ago.

The Ezra brothers recently convicted in San Francisco brought in through the port of San Francisco in three years sufficient to forever put to sleep the entire adult population west of the Rocky Mountains.

#### CAUSE OF FAILURE

First—the traffic is international in its origin and national only in result—we have concentrated upon the result, tracking and jailing the victims. Colonel Arthur Woods, formerly Deputy Police Commissioner of New York City writes: "Since the enactment of the Federal Act, actually thousands of addicts and small peddlers have gone into the prisons while with but few exceptions, the high financiers of dope smuggling remain at large. In practice this state of affairs amounts to little more than prosecuting the victims of the traffic and permitting those who reap the monetary benefits to go unmolested."

This practice is as futile and ineffective as swatting mosquitos to prevent malaria and yellow fever instead of drying the swamps that breed the germs. Foreign dope factories are the swamps that breed narcotic poison, smugglers and peddlers, like mosquitos, distribute it, and the victims are swatted to the tune of millions annually.

If these factories were manufacturing a bacteria to be smuggled and spread among the youth

of our land causing a terrible disease, our secret service would be called into action, the people would rise up in arms, nations would be horrified, yet no bacteria is more deadly than the poisonous narcotics being distributed and all we do is to make a gesture toward the breeding place and punish the victims.

Chief Justice William McAdoo of New York City: "We will get nowhere in useless debate about 'cures'—'custodial treatment'—raids on opium dens and arrest of addicts, nor in dealing with that cream of scoundrelism, the peddler and smuggler, unless we close the stream at its source—not wasting our energies trying to divert it here and there."

Second—Lack of education. Ten years ago, the 18th Congress of Legal Medicine for French speaking people passed a resolution in regard to illicit narcotics that "Repressive measures be supplemented with educative propaganda."

"We spend huge sums to teach the farmer how to protect his hogs from cholera—cattle from hoof and mouth disease—cotton and trees from boll weevil and bugs, but nothing to teach human beings that a narcotic is toxic—a poison that within a few weeks will create a terrible disease for which there has yet been found no cure. A famous diplomat once said: "You must put into the schools what you would have in the life of a nation a generation later," yet our schools are pitifully lacking in instruction on the dangerous narcotic poison.

Third—The law fails to recognize addiction as a disease as does the medical profession the world over—that the victims cannot perform the simplest duties without a daily dose—that the narcotic does not give a "kick" or "thrill" to those in whom this disease has been created but only spells relief from suffering almost beyond conception—that the addict is normal only under the influence of the drug, and abnormal without it.

U. S. Court of Appeals, Judge McDowell's opinion in a case where the chief witness was an addict: "The medical writers seem to be agreed that whenever a morphine addict is not under the influence of at least his usual dose, he is in a state which ranges from extreme discomfort to intense pain. In other words, morphine addicts

should be mentally at their best when under the influence of their customary dose, and at their worst when in need of it."

No nation penalizes the victims as we do. A German jurist was amazed to find that our laws made the use of narcotics a crime and that we sent the users to penal institutions. The same power that brought into existence the tobacco we smoke, brought into existence the poppy that produces a drug which has become a great blessing in the practice of medicine—an untold blessing to those suffering with incurable disease—to the wounded on the battlefield. Why should it be a crime to use one and not the other?

The difference in the two is—one is toxic and creates a toxemia in the body, a specific disease, said by some to be the "most terrible in the history of man," *a disease that manifests itself only upon withdrawal of drug*, but a disease should never be classed as a crime however contracted, and it is as unjust to penalize the victim of narcotics as it would be to penalize the victims of venereal disease. One person commits an act that causes one disease—another person commits an act that causes another disease, we make one a medical problem and the other police.

As a matter of fact about 90% of all diseases result from ignorance, misconduct, indifference and carelessness. Opium and morphine are medicines just as much as aspirin, quinine or any other drug used in the practice of medicine and it is incredible that their use should be considered immoral and a crime any more than the use of other drugs.

The International White Cross is trying to prevent the spread of this disease for the same reason that other associations are trying to prevent the spread of tuberculosis and venereal disease—no person can have a maximum vitality and energy with a diseased body, and no nation can be a strong nation if a considerable number of its population are diseased, dependent upon a narcotic every day to keep normal.

Prior to law, the majority had become users through patent medicines, practically all of which contained narcotics and through treatment by the medical profession, who, many years ago, used narcotics more freely than now. They did not have the improved salicylates, aspirin, etc., for relief of rheumatic and nerve pains neither



did they have the non-toxic hypnotics now used for nervous conditions and insomnia. *Today it is conceded by all authorities that about one-half of one percent of addicts are made by the physician in the treatment of disease.* They are made through the activity of the traffickers who know that once a victim, always a customer, and the sensational, distorted stories carried by the press and popular fiction about the "thrills" and "kicks" have aided the peddler—they have aroused curiosity.

A group of school girls standing on a corner in San Francisco were looking at a publication carrying one of these stories and a bystander heard one say: "wonder how dope makes you feel, I'd like to try it."

It is estimated that the cost of apprehension and prosecution of a person is \$50, hence New York City has spent \$15,000,000 arresting and prosecuting 12,000 addicts—they are still addicts and nothing has been accomplished toward solving the problem.

The Federal Government has spent some \$32,000,000 in enforcement—add to this the cost of state, municipal enforcement, plus transportation and maintenance of victims in jails and penitentiaries, and we cannot have less than \$125,000,000. A conservative estimate of the loss through thefts the past 18 years would be \$200,000,000. In other words, no less than \$325,000,000 have been taken from the pockets of the public during our futile effort to prohibit narcotics.

The International White Cross has drawn up eight articles of a plea for a change in the legalized aspect of narcotic drugs. These are embodied in a so-called "license system" which claims a gain to the nation, both economical and humanitarian. The eight articles of defense for this system are:

*First*—Each community would care for its own addicts—as it is, a certain type drift from city to city seeking a place where the drug is easiest to get.

*Second*—Millions would be saved to the merchants annually that they now lose through shoplifting and petty thefts of all sorts.

*Third*—The penal institutions would be emptied of addicts thereby saving millions for their maintenance.

*Fourth*—Cost of apprehension and prosecution running into millions annually would be saved.

*Fifth*—Inasmuch as addicts, before the law came into effect, worked, supported themselves and families, there is no reason why addicts of today cannot work if they have their daily dose to keep them normal—their earnings would go into legitimate channels of trade—under the present system, the enormous amounts secured through thefts goes to support the international dope ring and foreign drug factories.

An addict, a skilled mechanic, told a member of the White Cross that he could earn as good living as anybody if he could get his regular dose but that often he was unable to contact the peddler in time or did not have sufficient money to pay the price demanded. Because of the sickness that resulted, he could not report for work, and this irregularity prevented his employment.

*Sixth*—It would automatically eliminate the peddler—no one would pay \$1 a grain when he could get it for less than ten cents, which would be pure instead of adulterated as the illicit product is.

*Seventh*—It would prevent the making of new addicts—with the peddler eliminated, there would be no activity in this connection.

*Eighth*—It would eliminate graft and corruption—we know that tons of narcotics are not smuggled and distributed annually without protection any more than liquor was.

St. Louis Post-Dispatch, 1925: "Disrespect for law—lawlessness and grafting go hand and hand with prohibition of both liquor and narcotics."

Dr. Paul Wolff, a well known authority of Berlin, says: "The danger to a country is not merely the medical damage done to the addict but serious harm by the widespread corruption introduced by it into all classes of society," and Dr. Wu Lien Teh, the most famous of Chinese physicians, is a leader in a movement which favors a government license system for dealing with narcotics. This, he says, "would do away with smuggling and bootlegging together with bribery of officials."

All this to gain and nothing to lose. When a system has been in force eighteen years and utterly failed to achieve its purpose it is time to change it.



## HAS THE CHARACTER OF MODERN LIFE BROUGHT TO WOMEN MATERIALISM AND UTTER LOSS OF THE INTERNAL VALUES

Some of our mental hygienists are just now discovering that women whose reproduction nerve centers are occupied with mental creativeness or the achievement of great manual dexterity in crafts or trades are less concerned with physiological reproductivity. Especially is this true of young women.

What did they expect? For years feminist teaching was far too anti-feminine: All this fight for equality in public life was bound to turn women from kitchen and cradle. To lead them to self betrayal.

That was a foreseen eventuality. Not, however, an incidental arraignment of higher education, merely an episode.

Yet there is great to do over certain pronouncements made recently by one of the medical consultants in mental hygiene at one of the great western universities, who said in part, and spoke as a woman dealing with women:

"In her struggle for equality, or superiority, the college girl is driven away from her instinctive and cultural self toward an attitude which she cannot assume without destruction to her finer senses.

"The strain is showing in abandonment to the excitement of relations with college boys which are not true or natural in some college girls. Other girls become shy and withdraw within themselves, while others become bloodless, cold and unscrupulous.

"The movement for general sex education, has unloosed a flood of talk until sexuality has become an obsession.

"Twenty years ago, there was a general movement for sex education, taking the place of positive silence on the subject. Many of us had high hopes that it would solve many of the difficulties of marriage and relationships between men and women. In this it has signally failed.

"There is more unhappiness in marriage and more confusion in relationship than ever before. A situation must be sensed through feeling, and reason can only cloud the issue.

"Women today are undervaluing the family and marriage.

"We are informed that marriage is nothing but an outworn convention legalizing sexuality.

Mothers with large families are discredited today.

"One hundred years ago new demands of women brought these three great mental changes.

"That raising a family is ignoble and troublesome.

"That the lot of the male is colorful and interesting.

"That an animosity to the male must be felt because the male keeps women out of his colorful life.

"The character of modern life compared with that of only a few years ago has brought materialism and utter loss of the internal values. In order to find their way back all women must return to the inner realization of feminine values.

"Men are used to the struggle of learning why things are as they are and why they behave as they do. But women are subjected to a strain when they get beyond the relationship instinct or feminine emotions.

"False assumptions, as to sex freedom for the ardent campaigner of the latter half of the past century had all the validity of cosmic truth. Girls today must realize that feminine and emotional qualities must not be stifled in the struggle to equal the other sex mentality and that to stifle these emotions brings nothing but destruction and unhappiness to life. It is vital for girls and women today especially the college girl to get back to the real evaluation of other human beings."

What a *change*, my brethren, *what* a change!

## CHRISTIAN SCIENTISTS COME OUT FLATLY AGAINST STATE MEDICINE

When the arch-foe of scientific medicine, the sect of Christian Scientists, comes out flatly against state medicine, not because this monstrous jape is medicine, but because it is political jobbery spawned by chaos and communism, then indeed would *le dernier mot* appear to have been spoken!

Now, no matter what other accusations may have been made against the followers of the cult and creed established and expounded by the late Mary Baker Glover Eddy, nowhere has there ever been raised so much as a breath, let alone a whisper, as to the patriotism, the simon-pure Americanism of the members of the Church of

Christ, Scientist. Nor, and it must be stated emphatically that this comment is free from any idea of disparagement, has there ever been any doubt in the minds of the non-Eddyites that this same group lacks business ability. Quite the contrary! For commercial acumen, Christian Scientists are decidedly celebrated. A Christian Science healer or reader can collect his or her bills with a maximum of totality that leaves the average practitioner of medicine, deaf, dumb and blind from envy. Whatever criticism against Christian Science may or may not be founded, the lack of a good business sense is not one of them. That "charity begins at home" and that "faith without works," or prayer without the purse doesn't amount to the proverbial picayune is a well established tenet of the practicalities of the followers of Mother Eddy.

It is therefore with interest that even the critics of Christian Science note with what emphasis the cult puts thumbs down on state medicine and all its works.

Dispassionately the Scientists have discovered that state medicine is not only what it purports to be but an insidious attack upon that part of civilization that is trying to stand, man to man, shoulder to shoulder for an equable distribution of the carrying charges of human existence.

So strongly does the membership of the Church of Christ, Scientist, feel on this subject that it is a matter of comment in the mouthpiece of the organization, the *Christian Science Monitor*.

Against this politically controlled injustice the editorial columns of this periodical, one of the most ably edited in the country, speaks frankly and precisely.

Terming state medicine "medical peonage," this editorial says:

"The family physician who brought kindness, ready sympathy and unselfish service in large quantities along with his pills and potions has been passing from the American scene; more and more his place has been taken by a complex mechanism, a highly departmentalized professionalism, with impersonal efficiency its dominating sentiment. Now there is a tentative plan for a broad organization of 'state medicine,' as recently outlined by the secretary of the Milbank Memorial Fund of New York. This plan, utterly impersonal, purposes that the American

population—including that 62 per cent. which the fund's spokesman says receives no medical, dental or eye care of any kind—shall be coerced into supporting financially and yielding physically to the domination of a group of state-employed men.

"It is difficult to understand why every citizen—including those who by choice would adhere to a rival school, to no school, or who depend upon prayer for healing—should be compelled to comply with such a regulation. Incidentally, it is strangely foreign to the legend of the family doctor, who worked under the motto, 'To each according to his need; from each according to his means.'

"Yet it is just this point which the Milbank fund stresses as its reason for proposing compulsory state medicine. The complexities of modern medical practice, it is claimed, have elevated its cost above the means of many who wish it. Therefore, what could be simpler than for everyone to contribute his proportionate share of the total cost of medical aid, thus minimizing the per capita cost according to the well-known practice of insurance?

"If those who feel they wish material aid in their illness were left free to enter or refrain from participation in such a scheme, no criticism could be leveled at it. But, in order to make the plan thoroughly effective, says the fund's secretary, it must be made compulsory upon all. But will that 62 per cent. of the people who have not felt the need of medicine sufficiently to seek its aid—although it is offered without cost in countless hospitals and clinics—permit themselves to be saddled with medical peonage?"

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#### DOCTORS ARE RARELY VISITED AGAIN BY A PATIENT AFTER THAT PATIENT HAS ACQUIRED THE FREE CLINIC HABIT

The *American Mercury*, one of the most fearless of lampooning crusaders against American errata, has taken a whack at national pinheadedness as exemplified in intelligent support of free clinics, free medical service and other deliberate lay malfeasance against the scientific practice of medicine.

Under the title "The Plight of the Doctor," this article says in part:

"It is now customary, even in hospitals main-



tained by public and private contributions, to make small charges for medical service and drugs in the so-called free clinics. But it has never become customary for the doctor to be paid for his work in these clinics. As a matter of fact, many doctors have been dismissed from hospital staffs for violating the rule which forbids a doctor from inviting a clinic patient to become his private patient.

"And once a free patient always a free patient. Doctors have observed that they rarely ever are visited again by a patient after that patient has acquired the free clinic habit. The patient reasons that he was a fool, indeed, ever to have paid doctor's bills. 'With free treatment available just around the corner?' And most of those who first entered free clinics because of the economic depression never again will patronize their family doctor. They have joined the nation's vast army of free patients, and to what a size that army will grow no one can tell.

"There are 500,000 persons in this country being treated in free clinics each day. It may be assumed that the attention given the average patient is worth a minimum of \$2, as this attention is exactly what the patient has been getting from his family doctor. As in all free clinics the doctors donate their services, it may truthfully be said that doctors are donating \$1,000,000 daily to the sick poor and those who pretend poverty to procure free medical service."

#### DOCTOR OCHSNER'S BOOK ON MEDICAL ECONOMICS—A BEACON OF LIGHT APPEARS IN MASS OF ECONOMIC MISINFORMATION

In the welter of misinformation, propaganda and falsehood—direct, even when not deliberate—as to Social Insurance, and especially that ramification of this measure known as Compulsory Health Insurance, appears at last a beacon light. Plain, cold facts, hard, ironclad findings on this burning issue of the times are set forth with rare veracity and in good plain English by Dr. Edward H. Ochsner of Chicago, Ill., in his book, "Social Insurance and Economic Security."

Compulsory Health Insurance has been tried and found wanting in Europe. Its continuance there and its international extension by adoption in the United States is of great personal

interest to a horde of selfish socialists, skilled in the juggling of figures and in the usage of phrase.

So we have had a deluge of doctrine and a flood of figures. It has remained for Dr. Ochsner, an economic expert of rare discretion, to dig in and to separate the chaff from the wheat.

His conclusions are given to the public in such form that laymen as well as scientists may read understandingly and learn with facility.

Dr. Ochsner has retired from the practice of medicine. He has at stake nothing but his worship for what is right and his devotion to human needs. He has a passion for justice and a quality that for lack of better wording might well be called social and economic competence—a gift of the gods that is inherent rather than acquired. With an utterly dispassionate and mathematical exactitude Dr. Ochsner presents the facts as they are proven by existence and experience.

Writes Dr. Ochsner: "The reason why the wrong is so often victorious over the right is because only too often wrong is championed by someone or by a group that expects to make capital of it; while the right, which affects society as a whole, usually has no champion or champions who are personally, individually or collectively affected more than is society in general."

Since Dr. Ochsner is more capable of expressing his own ideas than is anyone who attempts this expression for him, it may not be amiss to quote from his own foreword to "Social Insurance and Economic Security." In this he says:

#### FOREWORD

*Education without experience has little if any meaning.*

During the summer of 1931 I conceived the idea of writing a series of twelve short articles on Social Insurance and submitting them to a number of medical journals to appear simultaneously in as many of the journals as would be willing to print them under these conditions. In furtherance of this idea, I released the first article of the series on December 16, 1931, to forty-two medical journals and one dental journal with the following letter:

"Dear Doctor:

"For a number of years I have been convinced that Social Insurance is one of the most important problems confronting the civilized nations of the world and that Compulsory Health Insurance, a branch of Social Insurance, is the biggest quasi-medical question before the medical profession of this country today.



"Acting on this belief, I have prepared six short articles which consider the problem from its political and economic effects upon society in general. If these articles are well-received by the editors, I intend to write six more, the material for which I have already collected. These latter articles will consider the effects of such legislation upon medical practice.

"My plan is to release one of these articles on the 16th day of each month, for publication the following month, to all of the statte medical journals, to a few of the privately owned journals that devote space to such problems, and to the Journal of the American Dental Association.

"In order to avoid unnecessary expense, I should appreciate your advising me by letter of your decision or by sending me a copy of the journal in which the article appears, in order that I may know whether you are publishing the enclosed article and whether you care to receive and publish subsequent releases. Of course, publishing one or more of the first of the series does not obligate you to publish subsequent ones. Should you be disposed to do so, I can see no objection to your using the first two paragraphs of this letter as an introduction to the first installment herewith enclosed.

Very respectfully,  
EDWARD H. OCHSNER, M. D."

Somewhat to my surprise and certainly to my gratification seventeen medical journals and one dental journal agreed to the proposition and published the series throughout the year 1932, most of them regularly and a few of them at intervals. During the year in which the articles have been appearing in the various journals I have received a considerable number of communications commending the various articles and only three criticizing them. Of those who commended the articles, a considerable number urged me to collect them all and publish them in book form. Of the three letters which criticized the series two were from out and out socialists who naturally would criticize anything which upholds the present social and economic order. The other criticism came from a journal editor who criticized them on the score that they did not present enough statistical data and hence were really only expressions of personal opinion. That there was some basis for this latter criticism I had to agree, but not to the extent which might appear on the surface.

In the first place, if I had made my articles sufficiently long to carry many statistics and references coupled with the necessary explanations and comments, it is very doubtful whether any journal would have been willing to publish the whole series. In the second place, most of the statistics available have been compiled by government employes who have a natural bias in favor of the system which gives them a good living. As one student of this problem says, "It is not that the facts are falsified. It is only that they are carefully selected."

Mortality statistics in all civilized countries are fairly reliable. Morbidity statistics less so, and statistics as

to the relative cost of medical services to a nation under a system of private practice and under Compulsory Health Insurance are even less dependable because there are too many extraneous matters involved. When we come to most other problems, such, for instance, as the relative value of medical services rendered under the two systems and the effect upon the morale of the insured, we find that these do not lend themselves to statistical analysis at all, and yet these are by far the most important problems to be considered.

I agree that statistics if carefully and conscientiously collected and compiled do not necessarily lie, and yet when it comes to using statistics in evaluating the more subtle human relations, such as those which must of necessity exist between the physician and his patients, they rarely if ever tell the whole truth. Again, a table of statistics usually does not mean much unless analyzed, and it is just in this analysis and in their interpretation that so much error is likely to creep in. The conclusions reached by various interpreters will vary greatly according to their personal background and experience. This is all very well known and yet rarely given the emphasis which it deserves.

In this connection it is interesting to note that Aesop had encountered this same problem, as illustrated in the following fable:

#### THE LION AND THE STATUE

A Man and a Lion were discussing the relative strength of men and lions in general. The Man contended that he and his fellows were stronger than lions by reason of their greater intelligence. "Come now with me," he cried, "and I will soon prove that I am right." So he took him into the public gardens and showed him a statue of Hercules overcoming the lion and tearing his mouth in two.

"That is all very well," said the lion, "but proves nothing, for it was a man who made the statue." "*We can easily represent things as we wish them to be.*"

In addition to the unreliability of statistics in general and those of the proponents of Social Insurance in particular, the same criticism that was made in reference to my series can be made with equal if not even with greater justice about many of the articles in favor of Social Insurance. Thus the article by E. Hackforth is very laudatory and yet produces no evidence whatever that National Health Insurance has really benefited the English nation as a whole. To quote only one sentence which appears under the paragraph, Success of the Scheme: "As regards the effect of the scheme on the general health of the nation, it is difficult to produce any convincing statistics, but the fact that all insured workers are entitled to free medical attendance immediately they have any need of it must obviously be conducive to prompt treatment of incipient illness, with a consequent lessening of more serious results." We shall, I believe, be able to produce proof that his conclusion is "obviously" incorrect.

I am thoroughly convinced that personal opinions based on ample experience and mature judgment are

much more valuable than the sort of statistics previously referred to, and infinitely more valuable than the opinions of swivel-chair doctors who sit in their offices directing medical work without actual personal contact with the sick. One of the best preparations for evaluating such problems as Social Insurance is to have had a large and varied experience not only with medical and economic problems in general but especially with all sorts of people in various walks and vocations in life. This sort of personal experience is much more likely to develop dependable judgment than that obtained by second hand knowledge.

As much as I dislike and hesitate to do this, in order to establish the value of these opinions, it seems necessary to state upon what personal experience they are based. I passed the first fifteen years of my life on a large midwest farm in the pioneer days, going to country school six months of the year after the age of five and helping about the farm as soon as large enough to do so, and in those days that began very early in life for practically all of the farm boys. I attended high school for two years in a progressive midwest town of five thousand inhabitants and taught country school two winter terms of six months each. I was lumber-jack in a large lumber camp six months and "hired" man on various large farms for three summers. Then came a four year pre-medical course in the University of Wisconsin; three years at Rush Medical College; nineteen months resident physician and surgeon at Cook County Hospital; two years post-graduate study in Austria, Germany, and Sweden. Five years were devoted to general practice and acting as first surgical assistant to one of the most brilliant surgeons this country has so far produced, a man who probably did a greater variety of surgical operations than any man in the history of surgery and did them with a skill and dexterity rarely equaled. Five years adjunct professor of clinical surgery, University of Illinois Medical School. I practiced twenty-four years in general surgery. The four years as president of the Illinois State Charities Commission, during which time there were under our supervision about eighteen thousand wards of the State, gave me contact with those suffering from almost every physical, mental and emotional disturbance to which man is heir.

My first direct personal contact with the problem of Social Insurance occurred in the fall of 1896 as assistant in an ambulatory "Krankenkasse" nose and throat clinic in Leipsic. The clinic was under the direct personal supervision of a "Private Docent" of the university, a man in the forties with excellent training, high ideals, and fine personality, and yet I can truthfully say that the services rendered to the patients were mediocre, about the type of services usually rendered in the city and college dispensaries of this country. The treatments were mostly simply palliative, rarely curatives, and no time was spent in personal hygiene and preventive medicine for the simple reason that the time was so taken up with trivialities that there was no time left for the more important problems. It was my privilege to become fairly well acquainted with the head of the clinic and one day

about 2:30 P. M., after we had all worked without interruption since 9:00 A. M., the head physician said to me—"Now I am going home to my private office so that I can supplement my meagre income from the 'Krankenkasse' with a little private practice income so that I can support by wife and baby decently." I had the privilege of entering his home, a modest second story apartment of seven rooms. One room, which was used as his consultation-room and the sitting-room, had the double function of family sitting-room and reception-room for patients. From Leipsic I went to Hamburg to serve as externe in the Neue Allgemeine Krankenkasse located in the suburb of Eppendorf, a cottage hospital at that time of some fifteen hundred beds. It is here that I had my second direct contact with Social Insurance. I had been there only a few days when one morning I made rounds with the head-surgeon of the hospital, Professor Kuemmel. We went to one of the pavilions for third class male patients where Professor Kuemmel spent considerable time examining several patients. As we stepped out of the pavilion, Professor Kuemmel turned to me, the only American in the group, and with a good deal of emphasis and some heat said about the following: "I have to waste one-quarter of my time ferreting out malingeringers." While there was probably some exaggeration in the statement I soon found out by further personal observation that there was much truth in what he said. My third personal experience was in the winter of 1904 and 1905 in the ambulatory "Krankenkasse" clinic of Professor Schleich in Berlin.

These three experiences gave me an insight into the practical workings of Compulsory Health Insurance as no purely theoretical knowledge could have given me. In addition to the foregoing personal experience, I have kept in touch with the problem, reading and studying a fair number of the outstanding publications which have appeared from time to time on the subject. One more point has, I believe, an important bearing on this subject. During the first eighteen months which I spent on the continent of Europe in post-graduate study, I lived seven months in Vienna, two months in Leipsic, six months in Hamburg, and one month in Stockholm, I never slept one night in a hotel. Being able to speak the languages in these countries, I found lodging with middle class families in the better portions of the city immediately on my arrival. I did this purposely in order to become better acquainted with their modes of life and their mental attitudes to many of the social, religious, and economic problems which confronted them. In this way I gained much interesting and valuable information on many subjects including Social Insurance and the story I obtained behind the scenes, so to speak, was a very different one from the one usually over the right foot-lights by the well-paid laymen and quasi-professional men in high official positions who are intrusted with the management of the system.

Granting average intelligence, it is, I believe, fair to conclude that the opinions based on such experience and expressed in this book are of more value than conclusions reached by impersonal study, endless delv-



ing into books and perusal of pages and pages of statistics, particular when such statistics are practically all compiled by persons with a bias. When it comes to a problem so intricate and involved as Social Insurance is, the only opinions and conclusions that are really worth while are those which are reached after the correlation of a great number and variety of facts, and of these facts, those which are gained by personal experience are by far the most dependable.

In order to meet the objections to my series previously referred to I have added to my own experience and observation and the conclusions based thereon such statistical evidence as seemed entirely reliable and such quotations from the literature as seemed unbiased and hence dependable.

#### IN CONCLUSION TO THIS FOREWORD

If all the phases of Social Insurance were put into force in all the states of the Union immediately, it would not affect me as a practitioner of surgery because I have retired from active practice. As one who loves his profession, I protest most vigorously against the mechanizing and mediocratizing of the medical profession; as a taxpayer I object to adding to our already burdensome taxes; and as an American citizen, I am opposed to the breaking down of the morale of my fellow-countrymen, which, I believe, is the inevitable consequence of any system of Social Insurance which could be devised.

Even more explicated is the preface, in which Dr. Ochsner remarks:

#### PREFACE

Social Insurance as the term is now quite generally employed consists of the following subdivisions or parts: compulsory health insurance, old age pensions, widows' and orphans' pensions, and unemployment pensions or doles. In none of the countries were they all adopted at the same time. Germany adopted compulsory health insurance in 1883, and all of the other forms since that time. Austria adopted compulsory health insurance in 1888; Hungary in 1891. England adopted old age pensions first and compulsory health insurance in 1911, and the others subsequently. According to the latest reports available, forty-two countries now have some form of compulsory social insurance. In this country, twenty of the states have adopted old age pensions and some widows' and orphans' pensions, but so far none have adopted compulsory health insurance, for which negative blessing let us raise our voices in thanksgiving.

While much has been written on Social Insurance, most, if not all of the books, monographs, magazine articles, and even government reports, have confined themselves to some one branch or even phase of the subject, and the great mass of the writing has been done by propagandists who devoted their attention to the aspect of the subject in which they were particularly interested.

It seems desirable that a book be written at this time which takes up the more evident basic faults and underlying fallacies common to all of the subdivisions of Social Insurance.

We shall not discuss, at least if so only incidentally,

the development of Social Insurance in the various countries nor the changes that have been made in the various systems from time to time. Nor shall we analyze the points of difference which exist between the various types of Social Insurance now in force in the several countries because, in the first place, these things have been done innumerable times, and in the second place, because it would tend to confuse the issue by diverting the attention from the fundamental problem involved. It is our firm conviction and belief, and hence our contention, that all the systems are intrinsically bad—only "some are worse."

When the scientific physician wishes to study and describe a disease he proceeds in about the following manner: He makes some general observations, selects a suitable name, formulates a definition, ascertains its origin, its causes its symptoms, its probable outcome, and a remedy or remedies for its alleviation or cure.

Since we look upon Social Insurance as an economic disease, let us proceed in our study of it along these general lines.

*"It will be a bad day for society when sentimentalists are encouraged to suggest all the measures that shall be taken for the betterment of the race."*—Woodrow Wilson.

Bruce Humphries, Inc., Publishers, Boston, Mass.  
Price, \$2.50.

#### THE EFFECT A MAN'S JOB HAS ON THE LENGTH OF HIS LIFE

The National Tuberculosis Association has after a five years study given out some valuable statistics from which we quote:

The highest death rate from all causes, for working men, 15 to 64 years of age, was found among hostlers and stable hands, 36.22 deaths per thousand employed. The rate for garage laborers of the same age was only 6.65. The rate for operatives in harness and saddle factories was 30.55; for aviators, 28.73; for operatives in cigar and tobacco factories, 19.32, which was also the rate found for boatmen, canal men and lockkeepers. Sailors and deck hands had a rate of 17.28. These may be compared with school teachers, with a rate of 4.42, and social and welfare workers, with a rate of 2.75, or with the rate for all "gainfully employed males," aged 15 to 64 of 8.70 per thousand. In the public service, guards, watchmen and doorkeepers died at the rate of 20.25 per 1,000. Firemen showed a rate of only 6.71. General laborers in the public service had a rate of 7.15, but garbage-men were found to have an index of 11.39. The rate for postmasters was higher than that for mail carriers, the figures being respectively 11.00 and 6.10.

Other comparisons taken from the report are:



lawyers, judges, and justices, 7.89; physicians and surgeons, 10.69; clergymen, 10.33; cemetery keepers, 6.50; college president and professors, 2.69. Rates for laborers in the chemical and allied industries were low at 5.13, and laborers in soap factories, 3.29, while for inventors, the rate is 17.65 and for draftsmen 3.21. Managers and officials of real estate companies have a rate of 5.64, but for real estate agents it is 10.09. Chauffeurs and truck and tractor drivers, 6.19; draymen, teamsters and carriage drivers, 17.59; telegraph operators, 10.09, and telephone operators, 4.59.

The report, entitled "Death Rates by Occupation," contains eight thoroughly detailed and comprehensive tables, accompanied by interpretative comment. One of these tables shows death rates for various occupations by broad age groups according to cause of death. Suicides among lawyers, judges and justices are less than the average for all gainfully employed males included in the study; among doctors, suicides are greater. Unskilled workers kill themselves in greater proportion to their numbers than professional men, and agricultural workers less than semi-skilled workers in other pursuits. Tuberculosis takes its greatest toll among unskilled workers, whose rate is double the average for all workers; the rate for skilled workers is a little under the average; while professional men have a rate less than one-third of the average. After the age of 45, heart disease claims more than the average of professional men; but the rate for agricultural workers is only half the average, and unskilled workers again seem to get the worst of it from heart disease, with the highest rate, for both the 25 to 44 and 45 to 64 age groups.

Some of the other diseases for which detailed rates are given in the tables accompanying the report are: cancer and other malignant tumors; nephritis; cerebral hemorrhage; diabetes; cirrhosis of the liver and accidents.

The importance of the study is pointed out by Miss Whitney who says in the report: "Without accurate data as to the relative health risk of various occupations, no one knows where to expend the greatest effort in industrial health work. Each industry has come to realize that certain of its occupations are more hazardous than others. Employees in dusty trades, those usually exposed to high temperature or to excessive moisture, or to bad weather conditions gen-

erally, are among the workers subjected to the greatest risk. That a certain occupation may be hazardous may be a recognized fact. But how hazardous is it? How much more dangerous is it than other occupations in the same or other industries?"

Many difficulties were surmounted in obtaining the facts contained in the final report, which is based on data of the United States Census Bureau. The principal obstacle encountered was that the death certificates did not disclose occupations in a satisfactory manner for such a study. Another was the frequent discrepancy between the method of classifying occupations on death certificates and census returns, so that a comparison of the number of deaths with the number of persons employed in a given occupation was difficult. Beginning in 1929, an effort was made throughout the United States to obtain uniform reporting of occupations on death certificates, and it was found that ten states, for the year 1930, had their vital statistics in a condition to make studies of them significant. These states were: Alabama, Connecticut, Illinois, Kansas, Massachusetts, Minnesota, New Jersey, New York, Ohio and Wisconsin. The total population for these states comprised 38 per cent of all that for continental United States.

"Another difficulty inherent in studies of occupational mortality," states Miss Whitney, "is the tendency to change occupations on the part of workers whose health becomes impaired or who are growing old. The machinist who becomes a forester after he contracts tuberculosis, and the boiler maker who gets a job as watchman when he grows older, cannot be properly evaluated in any analysis based on census statistics. Only through the intensive study of small groups obtained by the sampling process can this tendency to change occupations be taken into account.

"Not only is one's chance of survival affected by the hazard directly inherent in the job, as in the case of metal filers and zinc miners, etc., but there is too the effect of social or economic status or of different standards of living, as implied by certain occupations. For example, the lowest rate from tuberculosis is found in the highest economic bracket, and the rates increase steadily through the other social-economic groups. (with the exception of agricultural workers) the highest tuberculosis death rate occurring in the lowest social-economic group."

## MEDICAL ECONOMICS

As mentioned in the July article in this column, the subject of Health Insurance and Group Hospitalization was of great interest at the recent annual meeting of the American Medical Association held in Cleveland. The statement made in report of this committee at the last annual meeting of the Illinois State Medical Society at Springfield that there was considerable difference of opinion among medical men in regard to the proper stand to be taken by organized medicine was amply verified. To one who was not present at the meeting, but has read the published statements carefully, it seems that in all probability both the American College of Surgeons and the delegates to the American Medical Association, spoke a little hurriedly. However, it verifies the assertion that it is high time that the entire subject be carefully studied from all angles prior to making a definite decision and recommendation. This Committee in its annual report advised the formation of a special committee for this work, but those in authority did not see fit to follow that recommendation and instructed this committee to study the subject further. This we will try to do in the coming year, so that we may have a recommendation at the next annual meeting.

It is interesting to note that the delegates at Cleveland voted that so-called "Contract Practice" was unethical. This was in accordance with the action of the Christian County Medical Society last spring, when they expelled a member, who had been most active in this type of practice in a mining community in that county. The action of the Christian County Medical Society was reviewed at the last meeting of the Council and it was found that the action had been carried out in a legal manner and accordingly the action was approved. This is another of the real live problems of the medical profession and it is to be hoped that definite regulations as what can be done in this kind of practice will be decided on and placed in effect throughout the state. The definite action must be taken by the local County unit along the lines outlined by organized medicine, State and National, with the definite assurance that when their action is taken in the proper manner, the State Society and the A.M.A. will stand behind them.

Of course the danger of State Medicine is con-

stantly in the thoughts of the thinking men of the profession, who are always on the alert for the first move of those reformers, the most of whom are outside of organized medicine, whose avowed purpose is the furthering of this movement. So serious has this become that the action of men outside the medical profession is viewed with at least suspicion every time they write in the lay magazines or burst into print in the front page of a daily paper, on medical subjects. The question of their sincerity is not subject to argument. And, of course, they are entitled to their opinion. However, they would object to having medical men tell them how their business should be conducted, as the recent experience with the NRA has verified. Coupled with this danger is the much greater one of politics. How to consider them separately is beyond our comprehension. We have all seen the effects of politics on business and it is terrifying to think of the entire medical profession of the State and Nation under the direct control of political appointees. The results have been so unsatisfactory in many other lines that we must be on the alert for the first move to bring medicine under political control. Possibly we are at times over-apprehensive and possibly prejudiced, but as long as we are watchful, we have a chance to recognize and combat such plans in their infancy.

E. S. HAMILTON, *Chairman,*  
Committee on Medical Economics.

## WHO EATS THE TAXES?

A press dispatch from Washington the last of December stated that more than six million men and women are now on Uncle Sam's payroll. This meant approximately one out of every twenty persons in the United States is living off the federal government. Now add to this six million the number of persons on the payrolls of states, cities, counties, towns, school districts, etc.—that is, persons who gain their living from funds secured through taxes—and you have a fair idea of why your income is near the zero mark.

To justify this enormous payroll, it will be claimed that it is a matter of emergency relief. But have these excessive expenditures been made because the people of the United States asked them, or because well organized, active, energetic and vociferous minorities urged them? Did you ask for them? Do you know of any of your neighbors who did? Your community is typical of all in this country. In truth, have not the demands for these excessive expenditures come from minorities who have imbibed freely of certain foreign theories?—*Committee on American Education.*



## Correspondence

### ANOTHER CHISELING INSURANCE COMPANY

*To the Editor:* In the August issue of the JOURNAL I read of an insurance experience of Dr. Beebe of Oak Park. I am now going through an experience with an insurance company which I think should be published.

I was called to an automobile wreck at 2 a. m. and found four injured persons, two of them had minor injuries and were dismissed within a few hours; one lady had a fractured clavicle and was in so much shock that I did not treat her until the evening of the day of the injury, other than to attend to the shock that she was in; the fourth lady had a fractured pelvis and was in so much shock that no operative procedures were inaugurated until about 48 hours after the accident, when I was able to determine that there was no injury of the viscera.

The party driving the car assured me the night of the injury that he had full coverage and insisted that we give the injured people every attention and that we would be remunerated in full by his Insurers. Some few weeks later an adjuster representing the Insurance Company which carried the risk, visited me and gave me the following information which was certainly news to me: that by a law in Illinois the Insurers are held liable only for the first twenty-four hours of medical or surgical service and that after that it is up to the doctor and the injured person.

When these injuries come in at the hour stated, the first thought of the surgeon and hospital authorities is to do what is deemed best for the patient and not to get out the policy and study it to see just where the limitations are.

In conversation with an official of the Insurance Company, I was further informed that the statement of the adjuster was correct. If this is a fact, I cannot see where the party carrying the protection has any benefits unless his accident results in an immediate death or a very trivial injury.

The lady with the fractured pelvis was hospitalized in the hospital of this city for six weeks for which services the Insurance Company allowed them \$29.50. I have been informed that

such payment as they made constitutes only the first twenty-four hours service and that they will make no further payment on the services rendered at the time.

I will appreciate it if you will run this in an early issue of the State JOURNAL as I have written it or pruned it down to where it gets the meaning across, at least. None of my brother physicians of this city knew of this situation until I ran into it. From the outlook of my experience, it seems as if we would be better off if we would disregard shock when some of these cases come in and operated immediately, which would be in most cases against our better judgment.

Thanking you in advance for such discussion as you give the matter, I beg to remain,

Cordially,

RAY B. ESSICK, M. D.

### PHYSICIANS AND CASUALTY INSURANCE COMPANIES

Every physician in Illinois during the year gives the necessary care to injured employees of some concern which carries insurance on their employees. Adequate records of the cases must be kept, and both preliminary and final reports of the case must be submitted to the insurance company, then with the final report, the itemized statement of the physician for services rendered that particular case are submitted to the company.

It has been the experience of most physicians doing this type of work to have some claim adjuster or attorney for the insurance company write them stating that the bill presented is exorbitant, and must be reduced from 25% to 50% before it is paid, and frequently the statement is made that the correct charge for the services rendered are considerably less than the amount presented in the statement.

The Illinois Industrial Commission does not have a uniform fee bill governing these cases, and invariably the county medical society fee schedule must prevail. Quite recently in Illinois physicians who have protested at this action of the insurance companies have taken the case into court, filing suit against the employer who is responsible for this care, and when their fees as submitted for the services performed, are in accordance with the local fee schedule, judgments



have been rendered by the Court to sustain the charges.

A case of this nature was reported in the August JOURNAL where a physician treated an industrial case, received blanks from an insurance company which were filled out and returned, and after the case was released, a bill for services was submitted and a check for approximately one-half of the bill was submitted from the insurance company with a statement that the check was in conformity to fees generally charged by physicians for that type of work. The patient was sued in Justice Court, and the full bill was allowed. An appeal was taken and the higher court allowed the bill in full.

At the 1934 Annual Meeting of the Illinois State Medical Society held in Springfield, the Public Policy Committee in the annual report asked the approval of the House of Delegates to a change in the name of this Committee to the Public Relations Committee, and also suggested that their committee be empowered to aid the physicians in these cases where there is a controversy between the physician and the insurance companies relative to the bill for services in industrial cases. The requests of the committee were approved, and within a short time the Public Relations Committee will be ready to receive complaints of this nature from any member of the Illinois State Medical Society.

Physicians who do this type of work are entitled to their regular fees for services in all cases except those in which an agreement has previously been made relative to fees with the employer or the insurance company. The fees charged should be in accordance with the fee schedule of the community in which the physician lives, and preferably he should be able to show that it is entirely in conformity with the county medical society fee schedule.

The Illinois Industrial Commission contrary to statements frequently made by representatives of insurance companies, does not have a fee schedule governing the charges for caring for these cases. It is as ridiculous for a claim attorney to tell a physician what the correct fee should be for medical or surgical care, as it would be for the physician to tell the attorney what his correct fee should be in a legal case.

Every county medical society should have uni-

form fee schedules for the physicians in that particular county, and when controversies arise over a disputed bill, a copy of the fee schedule should be submitted to the Public Relations Committee for their guidance, and if at the time such copies are not available, statements from the President and Secretary of the County Society should be submitted to show that the charges are correct for that community.

The Public Relations Committee expects to be ready to receive complaints of this nature early in September, and will submit informative data to the members of the Illinois State Medical Society through the JOURNAL at an early date.

W. S. BOUGHIER, *Chairman.*

GEORGE MICHELL,

CHAS. J. DRUECK.

*Public Relations Committee.*

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#### INVITATION TO WISCONSIN

Meeting at Green Bay on Wednesday, Thursday and Friday, September 12 to 14, the State Medical Society of Wisconsin extends a very cordial invitation to members in adjoining states vacationing in Wisconsin to be guests at its 93rd Anniversary Meeting. All sessions will be held in the Columbus Community Club, Green Bay.

Morning sessions will be devoted to section meetings and clinical presentations with general sessions each afternoon. The President's Address will be given at a smoker Wednesday evening, September 12th, while Drs. Olin West, Secretary of the American Medical Association, and Dean Lewis, Baltimore, will address the annual dinner on Thursday evening.

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#### WOMAN'S AUXILIARY

##### ILLINOIS STATE MEDICAL SOCIETY

The Board of the Woman's Auxiliary to the American Medical Association, Mrs. Robert W. Tomlinson of Wilmington, Delaware, President, will meet at the Hotel Pearson, Chicago on Saturday, September 22.

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#### ADVISORY COMMITTEE FROM ILLINOIS STATE MEDICAL SOCIETY

R. R. Ferguson, M. D., 4013 Milwaukee Avenue, Chicago—Chairman.

John R. Neal, M. D., Springfield.

Charles J. Whalen, M. D., 25 East Washington Street, Chicago.

Harold M. Camp, M. D., Monmouth.

Charles B. Reed, M. D., 30 North Michigan Avenue, Chicago.

INTERNATIONAL ASSEMBLY OF THE INTER-  
STATE POST GRADUATE MEDICAL ASSO-  
CIATION OF NORTH AMERICA

PHILADELPHIA, PA.

NOVEMBER 5, 6, 7, 8 and 9, 1934.

Pre-Assembly Clinics, November 3rd; Post-Assembly  
Clinics, November 10th, Philadelphia Hospitals.

*Monday, November 5th*

8:00 A. M.

Diagnostic Clinic: "Peptic Ulcer."

Dr. Edward J. Klopp, Professor of Surgery, Jeffer-  
son Medical College of Philadelphia, Philadel-  
phia, Pa.

Diagnostic Clinic: "Tuberculosis of the Genito-Urinary  
Tract."

Dr. Hugh H. Young, Professor of Urology, Johns  
Hopkins University School of Medicine, and Di-  
rector of the Brady Urological Institute, Johns  
Hopkins Hospital, Baltimore, Md.

Diagnostic Clinic: "Diagnosis and Treatment of  
Myxedema."

Dr. Cyrus C. Sturgis, Professor of Medicine, Uni-  
versity of Michigan Medical School, and Director  
of the Thomas Henry Simpson Memorial Institute  
for Medical Research, Ann Arbor, Michigan.

*Intermission for Review of Exhibits*

Diagnostic Clinic: "Complications of Pregnancy."

Dr. John R. Fraser, Professor of Obstetrics and  
Gynecology, McGill University Faculty of Medi-  
cine, Montreal, Canada.

Diagnostic Clinic: "Hoarseness—Differential Diag-  
nosis of the Manifold Diseases Accompanied by  
This Symptom" (Chalk Demonstration).

Dr. Chevalier Jackson, Professor of Bronchoscopy  
and Esophagoscopy, and Dr. Chevalier L. Jackson,  
Temple University School of Medicine, Philadel-  
phia, Pa.

*Noon Intermission*

1:00 P. M.

Diagnostic Clinic: "Varieties of Goiter and Their  
Management."

Dr. Frank H. Lahey, Director of Surgery in the  
Lahey Clinic, Surgeon to the New England Bap-  
tist Hospital and New England Deaconess Hos-  
pital, Boston, Mass.

Address: "The Treatment of Chronic Constipation."

Dr. Frederick J. Kalteyer, Clinical Professor of Me-  
dicine, Jefferson Medical College of Philadelphia,  
Philadelphia, Pa.

Address: "Post-operative Complications."

Dr. Elliott C. Cutler, Moseley Professor of Surgery,  
Harvard University Medical School, Boston, Mass.

*Intermission for Review of Exhibits*

Address: "The X-ray Diagnosis of Various Patholog-  
ical Conditions of the Small Intestine with Special  
Reference to Post-operative and Post-inflammatory  
Conditions."

Dr. James T. Case, Professor of Roentgenology,  
Northwestern University Medical School, Chicago,  
Illinois.

Address: "The Value of X-ray Therapy in Acute and  
Chronic Infection."

Dr. Willis F. Manges, Professor of Roentgenology,

Jefferson Medical College of Philadelphia, Phila-  
delphia, Pa.

Address on Ophthalmology.

Dr. John M. Wheeler, Professor of Ophthalmology,  
Columbia University College of Physicians and  
Surgeons, New York, N. Y.

*Dinner Intermission*

7:00 P. M.

Address: "The Surgical Treatment of Tumors of the  
Suprarenal Gland."

Dr. Waltman Walters, Associate Professor of Sur-  
gery, University of Minnesota, Graduate School of  
Medicine, Mayo Clinic, Rochester, Minnesota.

Address: "New Method of Ventriculography Through  
the Vault of the Orbit." "Final Recovery of the  
Facial Spasm After Plastic Reduction of Nervous  
Fibers."

Dr. A. M. Dogliotti, Professor of Surgical Diagnosis,  
Royal University of Torino; Vice-President of the  
International Society of Anesthesia; Member of  
the Reale Accademia di Medicina, Torino, Italy.

Address: "Qualitative Changes in the Neutrophilic  
Leucocytes, Illustrated with Natural Color Photo-  
micrographs" (10 min.).

Dr. Russell L. Haden, Chief of the Medical Division,  
Cleveland Clinic, Cleveland, Ohio.

Address: "Certain Problems Presented by the Ado-  
lescent Period."

Dr. William Palmer Lucas, Clinical Professor of  
Pediatrics, University of California Medical School,  
San Francisco, California.

Address: "The Significance of Menopausal Bleeding."

Dr. Floyd E. Keene, William Goodell, Professor of  
Gynecology, University of Pennsylvania School of  
Medicine, Philadelphia, Pa.

*Tuesday, November 6.*

8:00 A. M.

Diagnostic Clinic: "Chronic Appendicitis and Diseases  
Which Simulate It."

Dr. George P. Muller, Professor of Clinical Sur-  
gery, University of Pennsylvania Graduate School  
of Medicine, Surgeon to the Lankenau and Miseri-  
cordia Hospitals, Philadelphia, Pa.

Diagnostic Clinic: "The Simulation of Chronic Glo-  
merulo-Nephritis by Conditions Not Primarily  
Renal."

Dr. O. H. Perry Pepper, Professor of Medicine,  
University of Pennsylvania School of Medicine,  
Philadelphia, Pa.

Diagnostic Clinic: "The Diagnosis of Primary Pitui-  
tary and Parapituitary Lesions."

Dr. Charles H. Frazier, John Rhea Barton Professor  
of Surgery, University of Pennsylvania School of  
Medicine, Philadelphia, Pa.

*Intermission for Review of Exhibits*

Diagnostic Clinic and Address: "The Basic Nature of  
Chronic Arthritis and the Principles Underlying  
Treatment."

A combined presentation by Dr. Robert B. Osgood,  
John Ball and Buckminster Brown Professor  
(Emeritus) of Orthopaedic Surgery, Harvard Uni-  
versity Medical School, Boston, Mass., and Dr.

Ralph Pemberton, Professor of Medicine, University of Pennsylvania Graduate School of Medicine, Philadelphia, Pa.

*Noon Intermission*

1:00 P. M.

Diagnostic Clinic: "Post-operative Abdominal Fistula."  
Dr. John F. Erdmann, Attending Surgeon to the New York Post Graduate Hospital and Medical School, New York, N. Y.

Address: "Recent Advances in the Treatment of Urinary Infection."

Dr. William C. Quinby, Clinical Professor of Genito-Urinary Surgery, Harvard University Medical School, Boston, Mass.

Address: "Chronic Duodenojejunal Angle Ileus."

Dr. Ralph C. Brown, Clinical Professor of Medicine, Rush Medical College, Chicago, Illinois.

*Intermission for Review of Exhibits*

Address: "The Treatment of Myomata—Operation and Irradiation."

Professor Dr. Hans Guggisberg, Professor of Obstetrics and Gynecology, Director of the University-Maternity-Hospital, Berne University, Berne, Switzerland.

Address: "The Management of Common Colds."

Dr. Perry G. Goldsmith, Professor of Oto-Laryngology, University of Toronto Faculty of Medicine, Chief Surgeon, Department of Oto-Laryngology, Toronto General Hospital, Toronto, Canada.

Address: "Present Status of Immunization Against Communicable Diseases."

Dr. John A. Kolmer, Professor of Medicine, Temple University School of Medicine and Director of the Research Institute of Cutaneous Medicine, Philadelphia, Pa.

*Dinner Intermission*

7:00 P. M.

Address: "Indications for and Types of Surgery in the Treatment of Duodenal Ulcer."

Dr. Roscoe R. Graham, Assistant Professor of Surgery, University of Toronto Faculty of Medicine; Senior Surgeon, Toronto General Hospital, Toronto, Canada.

Address: "Clinical Aspects of the Various Important Types of Constitution."

Dr. Lewellys F. Barker, Professor Emeritus of Medicine, Johns Hopkins University School of Medicine, Visiting Physician, Johns Hopkins Hospital, Baltimore, Md.

Address: "Technique of Pneumonectomy and Lobectomy" (10 min.).

Dr. William F. Rienhoff, Jr., Instructor in Surgical Anatomy, and Associate in Surgery, Johns Hopkins University School of Medicine, Baltimore, Md.

Address: "Diagnosis of Pancreatic Cysts."

Dr. Allen O. Whipple, Professor of Surgery, Columbia University College of Physicians and Surgeons, New York, N. Y.

Address: "Vascular Crises."

Dr. David Riesman, Professor Emeritus of Clinical Medicine, and Professor of the History of Medicine, University of Pennsylvania School of Medicine, Philadelphia, Pa.

*Wednesday, November 7.*

8:00 A. M.

Diagnostic Clinic: "Differential Diagnosis of Syphilitic and Non-Syphilitic Eruptions."

Dr. Frank C. Knowles, Professor of Dermatology, Jefferson Medical College of Philadelphia, Philadelphia, Pa.

Diagnostic Clinic: "Pain."

Dr. John M. T. Finney, Professor of Clinical Surgery, Johns Hopkins University School of Medicine; President of Inter-State Post Graduate Medical Association of North America, Baltimore, Md.

Diagnostic Clinic: "What Constitutes a Good History."

Dr. William D. Haggard, Professor of Clinical Surgery, Vanderbilt University School of Medicine; President, American College of Surgeons, Nashville, Tenn.

*Intermission for Review of Exhibits*

Diagnostic Clinic: "The Significance of Jaundice."

Dr. Henry A. Christian, Hersey Professor of the Theory and Practice of Physics, Harvard University Medical School, and Physician-in-Chief, Peter Bent Brigham Hospital, Boston, Mass.

Diagnostic Clinic: "Diagnosis and Treatment of Brain Tumors."

Dr. Walter E. Dandy, Adjunct Professor of Neurological Surgery, Johns Hopkins University School of Medicine, Baltimore, Md.

*Noon Intermission*

1:00 P. M.

Address: "The Surgery of Amelioration for Intractable Urological Lesions."

Dr. Joseph F. McCarthy, Professor of Clinical Urology, Executive Officer of Department of Urology, New York Post Graduate Medical School, Columbia University, New York, N. Y.

Address:

Dr. Paul Strassmann, Professor of Obstetrics and Gynecology, Medical Department, University of Berlin, Berlin, Germany.

Address: "Pregnancy Associated with Diabetes." "The Use of Cholesterol in the Treatment of Diabetes."

Dr. Elliott P. Joslin, Clinical Professor of Medicine, Harvard University Medical School, Boston, Mass.

Address:

Dr. William J. Mayo, Chief of Staff, Mayo Clinic, Rochester, Minn.

*Intermission for Review of Exhibits*

Address: "Problems Relating to Peritonitis."

Dr. Vernon C. David, Clinical Professor of Surgery, Rush Medical College, Chicago, Illinois.

Address: "Chronic and Recurring Diarrheas."

Dr. Robert G. Torrey, Professor of Medicine, Woman's Medical College of Pennsylvania, and Physician to the Philadelphia General Hospital, Philadelphia, Pa.

Address: "Fundamental Physiological Concepts Differentiating Arterial from Arteriovenous Lesions and Their Importance in Relation to Surgical Therapy. Clinical and Experimental Studies."

Dr. Emile F. Holman, Professor of Surgery, Stanford University School of Medicine, San Francisco, California.



Address: "Streptococcus Infections."

Dr. Warfield T. Longcope, Professor of Medicine,  
Johns Hopkins University School of Medicine,  
Baltimore, Md.

Dinner Intermission

*Convention Dinner*

Addresses by distinguished guests.

*Thursday, November 8.*

8:00 A. M.

Diagnostic Clinic: "Functional Disorders of the Gastro-Intestinal Tract."

Dr. Alfred Stengel, Professor of Medicine, University of Pennsylvania School of Medicine, Philadelphia, Pa.

Diagnostic Clinic: "Back Injuries."

Dr. John J. Moorhead, Clinical Professor of Surgery, New York Post Graduate Medical School; Executive Officer, Department of Traumatic Surgery, Columbia University, New York, N. Y.

Diagnostic Clinic: "Malignant Hypertension, Manifestations and Treatment."

Dr. Campbell P. Howard, Professor of Medicine, McGill University Faculty of Medicine, Physician to the Montreal General Hospital, Montreal, Canada.

*Intermission for Review of Exhibits*

Diagnostic Clinic: "The Curability of Carcinoma."

Dr. E. Starr Judd, Professor of Surgery, University of Minnesota, Graduate School of Medicine, Mayo Clinic, Rochester, Minn.

Diagnostic Clinic: "Pain in the Chest."

Dr. James H. Means, Jackson Professor of Clinical Medicine, Harvard University Medical School, and Chief of the Medical Services, Massachusetts General Hospital, Boston, Mass.

*Noon Intermission*

1:00 P. M.

Diagnostic Clinic: "Differential Diagnosis of Border Line Cases."

Dr. Hugh Cabot, Professor of Surgery, University of Minnesota, Graduate School of Medicine, and Consulting Surgeon at the Mayo Clinic, Rochester, Minn.

Address: "Gynecological and Obstetrical Applications of Endocrinology."

Dr. Emil Novak, Associate in Gynecology, Johns Hopkins University School of Medicine, Baltimore, Md.

Address:

Dr. Roberto Alessandri, Professor of Clinical Surgery, Medical Department, Royal University of Rome, Rome, Italy.

*Intermission for Review of Exhibits*

Address: "Diverticulitis and Carcinoma of the Colon with Special Reference to the Differential Diagnosis."

Dr. Ross Golden, Associate Professor of Medicine, Columbia University College of Physicians and Surgeons; Attending Physician, Roentgen Ray Department, Presbyterian Hospital, New York, N. Y.

Address: "The Treatment of Acute and Chronic Mastoiditis."

Dr. Fielding O. Lewis, Professor of Laryngology, Jefferson Medical College of Philadelphia, Philadelphia, Pa.

Address: "The Diagnosis and Management of Diseases of the Biliary Tract."

Dr. W. Wayne Babcock, Professor of Surgery, Temple University School of Medicine; Surgeon, Philadelphia General Hospital, Philadelphia, Pa.

*Dinner Intermission*

7:00 P. M.

Address:

Dr. George J. Heuer, Professor of Surgery, Cornell University Medical College, New York, N. Y.

Address: "Some Aspects of the Etiology, Diagnosis and Treatment of Anemia."

Dr. George R. Minot, Professor of Medicine, Harvard University Medical School; Director, Thorndike Memorial Laboratory; Visiting Physician, Boston City Hospital, Boston, Mass.

Address: "Certain Aspects of Surgery of the Large Intestine" (10 min.).

Dr. Richard B. Cattell, Lahey Clinic, Boston, Mass.

Address: "The Relation of the Endocrines to the Psychoses."

Dr. Louis J. Karnosh, Assistant Clinical Professor of Nervous Diseases, Western Reserve University School of Medicine, Cleveland, Ohio.

Address: "Intracranial Injuries of the New Born from the Standpoint of the General Practitioner" (Moving Picture Demonstration).

Dr. P. Brooke Bland, Professor of Obstetrics, Jefferson Medical College of Philadelphia, Philadelphia, Pa.

*Friday, November 9*

8:00 A. M.

Diagnostic Clinic: "Poliomyelitis."

Dr. John Claxton Gittings, William H. Bennett, Professor of Pediatrics, University of Pennsylvania School of Medicine, Philadelphia, Pa.

Diagnostic Clinic: "Diagnosis and Treatment of Urinary Calculi."

Dr. William E. Lower, Cleveland Clinic, Cleveland, Ohio.

Diagnostic Clinic: "Primary Carcinoma of the Lung."

Dr. Evarts A. Graham, Bixby Professor of Surgery, Washington University School of Medicine, St. Louis, Mo.

*Intermission for Review of Exhibits*

Diagnostic Clinic: "Polyglandular Disease."

Dr. George Crile, Cleveland Clinic, Cleveland, Ohio.

Diagnostic Clinic: "Pernicious Anemia and Leukemia."

Dr. Harlow Brooks, Emeritus Professor of Clinical Medicine, New York University and Bellevue Hospital Medical College, New York, N. Y.

*Noon Intermission*

1:00 P. M.

Diagnostic Clinic: "Differential Diagnosis of Tuberculous and Non-Tuberculous Infection."

Dr. Charles R. Austrian, Associate Professor of Medicine, Johns Hopkins University School of Medicine, Baltimore, Md.

Diagnostic Clinic: "Benign Tumors of the Breast."

Dr. Dean D. Lewis, Professor of Surgery, Johns

Hopkins University School of Medicine, Baltimore, Md.

Address: "Recent Advances in Our Knowledge of the Thymus and Pineal Glands."

Dr. Leonard G. Rowntree, Director of the Philadelphia Institute for Medical Research; Clinician to the Philadelphia General Hospital, Philadelphia, Pa.

Address:

Dr. Charles H. Mayo, Professor of Surgery, Medical School, University of Minnesota and Graduate School, University of Minnesota (Mayo Foundation), Rochester, Minn.

*Intermission for Review of Exhibits*

Address: "The Treatment of Hirschsprung's Disease."

Dr. Fred W. Rankin, Lexington, Kentucky.

Address: "The Present Status of Surgery of the Sympathetic Nervous System."

Dr. Alfred W. Adson, Professor of Neurosurgery, University of Minnesota, Graduate School of Medicine, Chief of the Neurological Department, Mayo Clinic, Rochester, Minn.

Address: "Functional Nervous Disorders in Children."

Dr. Edward L. Bauer, Professor of Diseases of Children, Jefferson Medical College of Philadelphia, Pediatrist to the Jefferson Hospital, Philadelphia, Pa.

#### Tentative Foreign Acceptances:

Mr. A. Lawrence Abel, F. R. C. S., Surgeon Cancer Hospital, London, England.

Professor Mario Donati, Head of the Department of Surgery, University of Milan, Milan, Italy.

Dr. Ferdinand Sauerbruch, Professor and Head of the Department of Surgery, University of Berlin, Berlin, Germany.

#### THAT WHICH HELPS

MRS. ROBERT W. TOMLINSON

President Woman's Auxiliary to the American Medical Association

The meaning of the word "Auxiliary" is "*That Which Helps.*" To my mind on these three simple words, particularly the last, depends the entire life fabric of this organization.

In order to help, we must first remember the organization of which we have the great honor to be a part, and must keep in mind, while we are but twelve years old, the medical profession has been carrying on for centuries, activated by ideals so high that, had the rest of the world lived by them, mankind would, in all probability, not be in the unhappy state it is today.

We must take into account that this profession is a highly trained and technical one and we are not in a position, individually or collectively, to speak for it except in ways which have been approved by the appointed advisors of our Auxiliary.

Having assured ourselves we understand this, we may then ask what we can do, and if we are truly sincere, we find the field of our opportunities is a wide and fertile one, which we can cultivate with great success.

We are the wives of the men of this great profession, which in itself is enough to give us adequate cause for thankfulness. We do not live as other women; we can-

not help but know much of the sorrow in other lives, and yet we must never exhibit this knowledge to the outside world, and had the Auxiliary achieved nothing other than accord to us the friendship of all these other women who live similar lives to our own, we would be grateful to it for these understanding friends.

We, as women, belong to many organizations and are members of Boards where much of general interest is discussed, and we cannot be so affiliated without realizing the great amount of inaccurate medical and health information which is disseminated, and, in consequence thereof, we may let it be known that we are in a position to furnish speakers on Medical Subjects, who are authentic and whose positions are unquestionable.

It is possible to furnish such literature as the Study Envelopes and Hygeia, feeling as we do, that no one need apologize for the material supplied, as back of it stands the greatest Medical Body in the world. This relationship, particularly with other women's organizations, creates fast friends, and if zealously fostered, will engender a feeling of deep respect for that which we are endeavoring to accomplish, and the utilization of such instruments or agents, through our Public Relations Committee is perhaps one of the most inspiring opportunities we possess.

I should like to remind you that what we achieve is not attributable to our imagination, but to the recognized need for this work, by the American Medical Association itself. It is our great privilege to have the opportunity to assist in these ways. Give of yourself, but always with the knowledge that such effort is with the approval of your Advisory Committee.

You in the State of Illinois, have to a certain extent to evolve your own methods. Each State, naturally, exists under different conditions from its neighbor, but bear in mind that the entire National Organization is always at your service, with any help it may be able to offer. This is its duty and pleasure.

I close with a few words from a statement I made in New Orleans two years ago; you have read them before and simple as they are, I feel still the same about our aims and ideals, and I am sure that if we keep their meaning before us, we will continue on the right way.

"One great bond we have in common, one ideal that we hold highest among our earthly ones—the bond, that of participating in the practice of the noblest of professions; the ideal, that of using our services wisely in the interest of that profession and mankind, and proving ourselves true helpmates, both individually and collectively. Collectively we are a strong force which may be of much use in a quiet way to the medical profession. We who know the unselfishness of these men of ours, can do much to enlighten a frequently misinformed public about the true character of Medical work, and its plans for Public Health and Welfare. We can, in a non-aggressive way, offset much of the wicked propaganda constantly kept before an ignorant and deluded populace.

"With this in mind, let us use our time wisely, make our plans carefully, and thank God for the opportunity to be of service to this profession of which we are an honored part."



## Original Articles

### GENERALIZATIONS CONCERNING HEART DISEASE

ROBERT B. PREBLE, M. D.,

CHICAGO

The value of a generalization is proportionate to the mass and accuracy of the data upon which it is based. This statement carries the implication that is always fluid and subject to revision. While this is true, a generalization gives a breadth of view and a perspective which can be obtained in no other way. They may be compared to a contour map which gives information in three planes while the usual map gives information in only one.

If one omits from consideration the congenital heart lesions and those manifestations which, for want of a better term we may call neurocirculatory, heart lesions begin to appear at about three years of age, rare at this time, and for a time gradually increase. At the age of six or seven the rate of increase rises and continues to rise rather sharply until the age of puberty, when the rate slows somewhat. The maximum is reached at twenty, after which time this type of lesion rarely occurs as a fresh thing.

After twenty, this group of patients begin to die off, at first rather rapidly and then more slowly, but by forty-five practically all of them are dead, although occasionally they run over into the fifties, sixties and even the seventies.

At about forty another type of lesion begins to appear and this increases rather rapidly up to the age of fifty-five, when these patients, too, begin to die off and are practically all dead at the age of sixty-five, although they occasionally run over into the seventies. While they begin usually at about forty, they occasionally begin in the thirties, even in the twenties, and rarely in the teens.

The third form begins usually at about fifty and from there on it increases with great rapidity until by seventy practically all people are involved, at least pathologically, although they may show no clinical evidences. While usually beginning at fifty, they are not uncommon in the forties and are encountered even in the thirties

and twenties. The youngest patient in this group that I ever saw personally was eleven.

If one looks at these curves which I have drawn you see there are three apices, at twenty, at fifty-five and at seventy, and while these apices are sharply separated from each other each one of the curves laps over onto each of the others. This lapping may be due to the mere fact that the lesion continued longer or began earlier than the average, but they also overlap because occasionally two types of lesion are seen in the same individual. Thus, the first lesion may be present in an individual who develops a second or even the third, or an individual with a second lesion may develop the third lesion.

It is obvious to you that the first type of lesion is the endocarditis, the second is syphilis, and the third the cardiovascular process.

Diverse as these lesions are, the etiological factors have one feature in common. They are always systemic and while the resulting permanent effects may be local, all organs of the body have been exposed. The first type is due always to the action of any one of a variety of bacteria, a blood stream infection with a port of entry which may be known or suspected.

The second type is also an infective process, due to the Spirochete, usually appearing about twenty years after the initial lesion but occasionally much earlier, even as early as the secondary period.

When one considers the etiology of the third group, one must confess almost complete ignorance. One can, if one likes, repeat in a parrot-like way the variously accredited etiologic factors, like alcohol, tobacco, red meat, salt, and the wear and tear of these strenuous days, but as a matter of fact none of these factors is based upon accurate observation. Indeed, I think most men who have given this group of cases thoughtful consideration, will agree with me that none of these factors is really potential. What lies back of these changes is, to my mind, the most important question before the medical profession today. Not so much because of the great increase in their frequency but because of the much more disturbing factor that these vascular changes are appearing earlier in life and that one is now seeing frequently in the fifties and in the forties, changes which twenty-five years ago we rarely saw except in the seventies and in the sixties.

Read before Section on Medicine at the annual meeting of the Illinois State Medical Society, Springfield, Illinois, May 17, 1934.



I have no opinion as to what these causal factors are, but it would seem reasonable to suspect that they are factors which have entered into our lives within the last twenty-five or thirty years, and there are four factors which have so entered and which appear to me as possibly potential.

It was about forty years ago that we first began to use foreign proteins in the way of sera, vaccines and otherwise, and it is possible that these vascular diseases are remote effects of such use.

Secondly, it was about forty years ago that the pediatricians began, by their increased knowledge and skill, to save many a child who a few years before would have died of inanition or malnutrition. Now, it is possible that those children, carried through their infancy and childhood, are the ones who are now dying of senile changes at forty.

Thirdly, it was at about this same period that the American youth developed the mania for strenuous exercise and that, too, may be a factor. Every one of you will recall among your friends athletes who died too young from vascular sclerosis.

A fourth possible factor which began about this same period and has increased greatly is the use of the automobile which, by contaminating the air with carbon monoxide and other gases, may favor the development of these changes.

The essential point of contrast between these three groups of cases is that endocarditis is a disease of the heart and only twice in its course does it become a factor in the causation of disease elsewhere in the body. That is, during the acute stage bacteria may easily implant themselves in other places in the body and grow there. Or, more frequently, bits of clot may be detached from the diseased valve and float through the blood stream until some vessel is reached the caliber of which is less than the diameter of the clot. The importance of such infarcts is determined mainly by their location, and in part also by their size. There are many places where an extremely small infarct may give rise to serious or even fatal disturbance, while even large infarcts locating, as they so frequently do, in the spleen or the kidney give rise only to temporary disturbance. Once the inflammatory changes in the valve are healed, that individual may go for years in health and comfort, and no changes will be

found in the organs remote from the heart until the period finally arrives when the cardiac reserve becomes insufficient and the picture of a broken compensation develops. That is, endocarditis is strictly a disease of the heart.

The second group of cases, the syphilitic, is also due to infection, but the cardiovascular syphilis rarely appears until many years after the onset of the infection. It, however, differs from the endocarditis in that the lesions are never confined to the circulatory apparatus. There are always lesions elsewhere and one has to do not with a cardiac disease but with a systemic disease. It may easily happen that the cardiovascular element for long will overshadow everything else, but in many cases the realization that one has to do with a systemic disease will lead to the discovery of lesions, even serious lesions, which the patient and his friends have not suspected. That is, one will frequently find associated with the heart lesion a locomotor ataxia, a general paresis, syphilis of the liver, syphilis of the long bones and so forth.

When we turn to the third group, the etiology of which I have so frankly confessed I do not know, we have reason to believe that this process is not of infectious origin, even though we do not know the cause. It is a process which also is widespread throughout the body, even though the complaints of the patient may be strictly vascular. Every organ in the body has undergone some changes, and while the patient may present himself originally as a cardiovascular case within a few weeks or months, he may be renal, or he may be apoplectic, or he may develop a gangrene of an extremity, or any one of numerous possibilities all of which are merely different aspects of the same process.

While it is possible for an endocarditis, healed and quiescent, to remain stationary for years at a time, the cardiovascular cases tend always to progression, and the rate of progress is not even, sometimes more rapid, sometimes slower. Furthermore, the changes may increase in one set of organs while they remain stationary in another.

To review these three types of cardiovascular disease, the first either causes death in the course of a few weeks or months or may end in so complete a recovery that the individual goes on for years, leading a normal active life. Syphilis tends to progress, but does so less slowly than

one might expect, while the last form—which will come to all of us provided we live long enough—tends always to progression. When it comes to the recognition of these various types of lesions, and of course I cannot on an occasion like this go into any detail, I shall for convenience contrast first the endocarditis and the arteriosclerosis and take up the syphilis last.

Endocarditis begins as an infection, with the ordinary infective phenomena; temperature, sometimes chills, alteration in the blood picture, and frequently the presence of bacteria can be demonstrated in the blood stream. There may or may not appear evidences of infarcts in any place in the body. If the patient is to recover, these infective phenomena gradually and slowly decrease and finally disappear, and we have left a series of physical signs upon which, and upon which only, we base our diagnosis.

When the patient presents himself, as they most often do, after the period of acute infection is over, the history of the patient is of no consequence whatever so far as the diagnosis of the lesion is concerned. The history is of importance only by giving us a clue to the possible infecting agent, to the duration of the lesion, and to the completeness of the compensation. Their subjective feelings are of no value as an aid to diagnosis.

In contrast with this group is the arteriosclerotic, and to his story every attention must be paid, for in a great many instances it is upon the story that you make your diagnosis and not at all upon what you find physically. Indeed, if you disregard the story in many of these individuals your physical examination shows nothing. The heart being of normal size, both upon percussion and upon the orthodiagram, the vessels which are palpable or visible showing no change, the blood pressure being well within normal range, both systolic and diastolic, the urine being entirely normal, you might easily dismiss the individual with the assurance that he is in sound condition unless you listen to his story, when complaints of oppression, of cardiac pain, easy exhaustion, winter cough, and many other in themselves trivial incidents become gravely suggestive.

Another important contrast between these two groups of cases is that if you fail to recognize the existence of an endocardial lesion, no great harm is done. Far less harm is done to fail to recog-

nize the lesion than to say that a lesion exists when it doesn't. Indeed, I think there is no graver error in the handling of cardiac cases than to tell a young person that he has a heart lesion when he hasn't. If you make a diagnosis of heart lesion in youth, you must be in position to prove the existence of the lesion before any competent jury. If, however, you tell an old man he has a heart lesion and he hasn't, no great harm is done. You merely are giving him a tangible reason for leading the kind of life which an old man ought to lead. With the old man you never have to prove that the lesion exists. If there is dispute about it, you have to prove that it doesn't exist.

In a word, the diagnosis of endocarditis is based purely and solely upon physical signs while in the old man the diagnosis is based primarily on the story and only secondarily upon the physical findings.

Now, it is an interesting thing that syphilis, which in these groups occupies the intermediate position, is diagnosed in part on the story and in part upon the physical findings. In the endocardial group, instrumentation such as the orthodiagram and electrocardiogram rarely add anything to our information. They are an important aid in cases of cardiovascular syphilis and are essential in the vascular sclerosis cases.

When it comes to the question of prognosis in these three groups, in the first group the prognosis is always uncertain during the period of the acute infection, and it is uncertain not only as to the outcome but also as to the duration. Weeks or months may go by without any material change in the picture and then, for reasons which we do not know, improvement sets in and such recovery as is possible results. After recovery from the acute infection the life of the individual is dependent very largely upon circumstances. If he has a wise doctor and a cooperative parent who has some money it is possible for such a child to go on for many years and lead an astonishingly active life. If, however, there are neither dollars nor sense around the child has a poor show. He will be subjected to exertion for which he is unfit, he will be educated for an occupation which he is physically unable to live up to. Were it possible to always supply intelligence and money for these children life would be much prolonged.

These children when they come to death die of one of two causes. Either the valves become



reinfect and they die of an acute endocarditis, or they die from a broken compensation—rarely from the first break. Indeed, usually they will survive three or four breaks.

It is not always easy to recognize an acute reinfection of the endocardium. The febrile phenomena may be very slight. Repeated blood cultures may be negative, but whenever one encounters an old endocardial lesion which has a break in compensation, which persists in spite of adequate rest and proper medication, one should always suspect that the valves have become reinfect even though you may not be able to prove it until the patient reaches the autopsy table.

In the second group, the syphilis, the outlook is not so favorable. These patients rarely last even though the disease is recognized early for more than five or six years, although sometimes they will go longer than that, even ten or fifteen years, but generally the course is short. Furthermore, they very frequently end with spectacular rapidity, dying in a minute or two, either with the picture of an angina pectoris, or sometimes, as a ruptured aneurism. It is my conviction that the prognosis is less favorable now than it was twenty-five or thirty years ago, because the diagnosis is so much more frequently made and the patients are handled as syphilis, which is said to be a curable disease, rather than as heart cases.

Now, turning to the third group, the arteriosclerotic, the prognosis is very uncertain because so many of the incidents of life which cannot be anticipated, and therefore cannot be prevented, become serious accidents. For example, a man starts across the street and makes a quick jump to get out of the way of an automobile. That sudden strain may be enough to precipitate a fatal angina, or so thoroughly break his compensation that it cannot be restored. Or the old man goes to a friend for dinner, has a nice dinner which agrees with all the other guests, but precipitates in the old man an indigestion which in its turn precipitates an angina. Or, the old man goes out to play golf and instead of selecting a slowly moving companion and a level course plays with somebody a good deal younger and over a course that is too hilly, and the combined influence of these two precipitates an angina. Or, he gets angry with his children and the emotional disturbance precipitates an angina. But if the angina doesn't occur so easily he sub-

jects himself to exertion which will bring on a break in his compensation, and one must remember that the cardiac changes are only one part of a complex picture and that death may come to him by the renal route, or by the cerebral, or by any one of numerous ways. It is, however, possible with this group, as with the first group, to prolong life greatly and increase the comfort greatly if one can have dollars and sense, both of which are so frequently lacking. If these old people would only travel in the middle of the road, avoiding extremes of all sorts—and they should not forget that there are extremes of two kinds. An old man may drink too little alcohol just as well as he may drink too much. He may take too little exercise just as readily as he may take too much, although much too likely to go to the second extreme than to the first.

Now, in closing, let us contrast the general principles and treatment of these three groups. It is to be regretted but must be admitted that during the acute period of an endocarditis we have no means by which we can combat the infection. The day may come when we will have but at present we have nothing. It is only by maintaining the nutrition and the general care of the patient that one can accomplish anything, and even here our accomplishments are not ponderable. Once the infection has subsided, and fortunately in many of these cases it does subside, the subsequent care is important. The disappearance of the fever and the leukocytosis doesn't mean that the exudate upon the valve has undergone organization. That requires weeks and months of time, and by keeping these children quiet and in that way lessening their heart rate we facilitate recovery and reduce, probably, the amount of scar tissue. After that period has gone, life should be planned for the child not at the lowest physical level but at the highest physical level of which he as an individual is capable, and every effort should be made to encourage the child to do as much as he can do without discomfort, and an intelligent eye should be on him all the time to detect the first evidence of over-exertion in order that a period of rest may be prescribed. During the many months and often years of this stage no medication is necessary, and particularly should one avoid the too widespread practice of giving digitalis because a heart lesion exists. The value of digitalis during the periods of break in compensation has been dem-



onstrated by so many thousands of observations that no one can dispute it. One should, however, always use a properly standardized preparation in a dose determined by the weight of the individual.

I have already indicated my belief that the cardiovascular syphilis has now a higher mortality and a shorter course than formerly, and this I believe is due to the fact that effort is made to cure the syphilis. This cannot be done. The use of the arsenicals, bismuth and even mercury, hastens the process of the disease rather than slows it, it weakens the aortic wall rather than strengthens it, and I am satisfied that were the use of these drugs discontinued and the old method of using fifteen or twenty grains of iodide over long periods of time resumed it would lead to a prolongation of life, although it would not cure any more individuals.

When it comes to the third group, the etiology of which we do not know, but which is certainly a part of senescence, one must admit that efforts at correction of the etiologic factor are impossible, and one is forced to resort very largely to the management of the individual's manner of life, the avoidance of excesses, the middle of the road, quiet and peace, and as near happiness as you can provide.

Within the last few years the use of various theobromines has gradually, and I think justly, increased, so that for a number of years I have put all these patients on some one of the theobromines. I also provide that each one shall never be more than an arm's reach away from a bottle of nitroglycerine, in order that he may have as effective a drug as he can personally use in provision for the accident which you cannot anticipate, which you cannot prevent, and which fortunately doesn't always occur. Morphine, so useful in the cases of coronary thrombosis, of course cannot be safely put in the hands of very many individuals. That must be used by the doctor himself.

30 North Michigan Avenue.

#### DISCUSSION

Dr. Don C. Sutton, Chicago: I do not expect for a moment to add a word to the generalizations that Dr. Preble has covered so perfectly. The sole topic of discussion seems to be what is the cause of arteriosclerosis? I would like to call attention to some of the difficulties in making studies of the etiology of arteriosclerosis. Foreign proteins, gas from motors

may be factors. Within the last two years in Germany there has been some work with automobile exhausts on rabbits, the results of which seem to prove that it does cause arteriosclerosis. Dr. Longcope in 1912 found that he could produce arteriosclerosis and cirrhosis of the liver by injecting foreign protein into dogs. A number of workers with rabbits have found that they were able to produce arteriosclerosis by diets.

The important thing, however, is the value of such experimental work. Rats and rabbits in captivity have a tendency to spontaneously develop arteriosclerosis very early. It is impossible to evaluate such research work because of this spontaneous development of arteriosclerosis. We have to take with a definite grain of salt all the experimental evidence that is offered. I do not mean that some of this work may not be on the right track, but it is extremely hard to evaluate experimental work on animals.

In young individuals it has been my impression that arteriosclerosis develops during infection, like long-continued subacute bacterial endocarditis. Apparently there is a possibility of infection playing a part in the early sclerotic.

Dr. A. A. Hayden, Chicago: I would like to say a word of appreciation of this very interesting presentation of Dr. Preble. It is the best talk on the subject that I have heard for many a day. It is apparent that everyone dies with heart disease, not necessarily of heart disease. In the classification of things that have happened that have shot the curve of heart disease up—gas, foreign protein, etc.—it seems to me that one thing has been left out, namely, the increase in self-medication.

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#### WHITHER GOEST THOU?

CHARLES G. FARNUM, M. Sc., M. D.

PEORIA, ILL.

"No conception can be interpreted except through its history."

Nor is it necessary for us to penetrate the remote history of medicine and rake over the mouldy past, to interpret the trend of present day medicine or the changed attitude of the public toward it.

If we restrict ourselves to a period within the memory of most of us, we find that during those few years the field of medical practice has changed, that medical practice itself has changed, that the attitude of the public toward it has changed.

In this relatively short space of time encroachments on the medical field have come from every quarter and the perpetrators of these encroach-

ments have multiplied in number and in the boldness of their attacks until many lay individuals and various organizations of alleged philanthropic character now brazenly insist on complete and extraneous regulation or control of the practice of medicine. The threat is openly made that the day is not far distant when the public will demand free treatment of all its ailments by tax supported institutions.

Nor are such demands inconceivable for we already have the U. S. Public Health Service, the U. S. Veterans Administration, the Emergency Relief Administration, state institutions for the insane, county and municipal sanatoriums for the tuberculous and county and municipal hospitals for general medical care.

We are often accused of being ultra-conservative when we protest against our profession being socialized or supervised by laymen. We are called obstructionists and stand-patters. It is a favorite argument frequently used that we as physicians are not conversant with social science and its fundamental principles. That assertion is not true! Social science has no more profound students and no more intelligent ones than the men of medicine. We are familiar with its fundamentals, we are informed as to its development and progress and we acknowledge its sphere of usefulness. We know that social evolution is as positive as biological evolution.

But we also know that evolution in any field is a slow and time consuming process with many interruptions and many set-backs. We know that medicine has reached its present high plane through two thousand years of painstaking and laborious development, tenaciously adhering to a strict and honorable ethical code. We know that developmentally, medicine was a stalwart intelligent biped with mature judgment when social science was still leaping from tree top to tree top in the jungles. We are also aware of the capriciousness of human behavior complexes. We know the difference that exists between individual psychology and mass psychology and the impossibility of predicting human reactions with any degree of certainty. We know that but a few things are really settled in the social world and those not permanently.

Therefore, if medicine, in its process of evolution, is to become more and more socialized, we insist that that socialization shall come from

within. It must come as a gradual growth and through its own leaders who are heirs to the inspiring traditions and ideals of a glorious past and are fully conversant with its present status and its future needs.

In times of economic turmoil it is characteristic of mankind to become panic stricken, to lose sight of fundamentals, to miss the real essence of things and to turn to anything that is new and different, regardless of its irrelevancy, its inappropriateness or its incongruity. It is a matter of history that following every economic depression there has been a veritable flood of plans, legislative and otherwise, to correct existing conditions. Some may have helped. Many have certainly hindered.

At the present time the dominating idea is to mechanize, standardize and supervise everything from industry to charity and from many sources it is insisted that even the practice of medicine shall be thrown into the maelstrom of this all-inclusive plan. Medical service is to become a public utility, like electricity or telephones. It is to be put on a plane of mass production and the principles of big business are to be applied. It is to be conducted, not for the best interests of the sick, but for the profit of those who employ its practitioners. The doctor is to become the hireling of a lay organization. His status is to be that of a switchman or a machinist.

As an argument for this central control of things we are asked to look at what government regulation of business enterprises has accomplished. We are asked to behold the codes of proper business conduct that have been written almost over night for all industrial, commercial and financial pursuits. We are told with much pride that some of these codes of business are almost six months old and are still alive, albeit a bit sickly.

On the basis of this decidedly meager knowledge and almost no experience it is proposed that we physicians shall cast aside our code of ethics that has developed to its present height in a gradual and orderly manner over a period of 2000 years. We are requested to ignore the contemporary history of medical practice in many European countries where similar plans are in effect with disastrous results to both patients and doctors. We are asked to abandon the accomplishments of 20 centuries of development and prog-



ress and to treat patients like so many pieces of material to be put through a shaper or a punch press.

All this may sound like good business but it is bad medicine.

A tree cannot reach maturity in a day and a code of ethics cannot develop over night. Both require time and gradual growth to reach a sturdy and useful maturity.

Medicine is a science and an art. Its function is to relieve suffering and prolong life. It deals with the health, happiness, longevity and usefulness of human beings. It deals with the human equations of human individuals, no two of whom are alike in physical, mental, moral or spiritual make-up. It does and must continue to treat the patient as well as the disease. It must care for the ailing as well as the ailment. It must not overlook the individual when it views the masses. It must see the trees when it looks at the forest. It presupposes the individual care of the individual patient by the individual physician and if medicine is to continue its march forward the intimate, confidential, individualistic relationship between physician and patient must be maintained.

In spite of the efforts of many laymen and some physicians to classify it otherwise, medicine still remains a profession of the very highest type. It is not a mere business. Its ancient foundation and its modern superstructure have been built for the relief of the sick and suffering and by that very token it stands on a vastly higher and wholly different plane than business and is not amenable to the application of so-called business methods.

As a matter of fact, it is the attempts on the part of those outside the profession to insinuate these very business methods into the realm of medicine, that are responsible for much of the economic difficulty that now besets the profession and which causes us to pause and ask of medicine, "Whither Goest Thou?"

With lay organizations, philanthropic and otherwise, appropriating whole areas, with hospitals and charity clinics taking over large tracts, with insurance companies, industrial and business organizations and fraternal orders absorbing additional territory, with the various cults abstracting a huge province and most extensive of all, that gigantic expanse usurped by the munici-

pality, the county, the state and the federal government, the inroads into the field of medicine are so multitudinous and the territory taken away from the field of medical practice is so great that unless the present trend of things can be diverted and the innumerable menaces to our professional field can be overcome, then the answer to that question, "Whither Goest Thou?" is not a pleasant thing to contemplate.

In the light of its immediate history the conception as to whither medicine is going may be clearly interpreted and readily comprehended.

Its field is being rapidly narrowed by the inroads of extra-medical organizations. Its practitioners are being discredited, replaced and proselyted. It may be safely said that the present time is probably the most critical in the whole of medicine's economic history.

The problem then, is clear; but what is the answer to the problem? The diagnosis is plain; but what are the remedial measures to be applied?

In every condition of grave emergency, whether it be economic in the body politic or pathologic in the individual, a most heterogeneous aggregation of remedies is always prescribed.

Such is the case in the present emergency in medicine. Contemporaneous medical literature is filled with therapeutic measures, ranging from the idealistically sublime to the utterly ridiculous. Everyone who is consulted and everyone who is not, has a suggestion to offer until in this maze of divergent opinions we are forced to wonder if the astute old Sydenham did not have the vision of prophecy when he said, "The efficacy of the treatment of any diseased condition is inversely to the number of remedial measures that are advocated as a specific cure."

Nor is it strange that there is such divergence of opinion, for we are too close to the picture for clear vision. Our perspective is bound to be somewhat blurred. Moreover the stress of the whole thing is too great for profound meditation and clear thinking. Yet the working out of this problem must have profound meditation and clear thinking coupled with a wealth of common sense, a lot of militant activity and most courageous leadership.

No intelligent person who has studied this situation either as an abstract subject in Social

Science or as an acute personal problem would have the temerity to suggest any new procedure for its solution. There are no new procedures to suggest. But out of the mass of suggestions that have been offered we may select certain pertinent ones for further development.

For every problem has certain fundamentals underlying it. To be a problem at all it must be founded on certain undeniable and unalterable premises, and such is true with ours. So long as mankind exists we will have sick and injured individuals to be cared for and so long as sick and injured individuals exist the men of medicine will furnish that care. And since through long development ours has become an individualistic type of intelligence and our work an individualistic type of work, we contend that that work presupposes the individual care of the sick or injured by individual physicians. Mass medicine cannot care for mass humanity satisfactorily.

It would seem then, if we are to preserve the place that we have wrought for ourselves in the scheme of things, if we are to further develop those individualistic propensities that are peculiar to the study and practice of medicine, unhampered by lay or political control, if we are to continue our scientific, economic and social progress, if our initiative and our opportunities are not to be curtailed, if we are to maintain our identity and continue as a profession then out of the labyrinthine maze of proposals that have been offered for our salvation, we must select those two essential elements as representing the gist of our enigma and make them the objectives of our efforts. Both are pertinent and relevant because they are the two basic and unalterable premises of our problem—the one who requires medical care and the one who is to provide that care.

Therefore our first and probably our most important objective is the proper education of the patient and the potential patient. And practically every human being is a potential patient since sooner or later he will require medical care.

The public is receptive to information on health matters as it never was before. For the first time in its history it is taking its health seriously. It is health conscious. It listens with eagerness and reads with avidity. It is happy to be informed and it is going to be informed.

If it does not get proper information from us it will get improper information from some other source.

For that reason the work of our Educational Committee has a value and an influence that is inestimable and incalculable. Countless thousands hear or read the health educational matter that it sponsors. Its work has grown to where it is now one of the really great functions of the Illinois State Medical Society and it is the hope of each one of us that means can be provided for further broadening the field of its splendid work.

But unfortunately we are not alone in the distribution of information to the public on the subject of health. The propagandists and the advertisers are also informing this same public, and they are much more numerous and vastly more aggressive than we are. They possess no ethical code to keep them within bounds and often exhibit utter disregard for truth and common decency. They are seriously confusing those who are earnestly seeking authoritative information on matters of health. All too often these people cannot distinguish propaganda and cheap advertising from real health education and they suffer accordingly.

Here is where the individual doctor can be of inestimable influence and help. His very position as medical advisor gives him a certain authority and his statements concerning what his patient has heard or read have weight. He must be the educator of the patient and his family as well as their diagnostician and therapist.

For after all, the finest and most efficient education is individualistic. The one who said the most effective institution of learning he had ever known was Mark Hopkins on one end of a log teaching a boy on the other end of that log, was not far from right.

People can be informed en masse, they can be instructed in groups, they can be taught collectively. But real education requires the activating spark of dynamic personality and necessitates individual contact. Possibly this is the reason we encounter so many well informed but poorly educated graduates of some of our large institutions of learning.

The doctor must be constantly in touch with what organized medicine is doing in the instruc-



tion of the public. He must even be familiar with what the cults and the advertisers are telling that same public, in order that he may augment the one and contradict the other and thus fulfill his destiny as the final educator of the individuals who constitute the masses.

The second objective in our efforts at self protection and the preservation of our profession from the assaults of the arrogant, aggressive and ruthless forces that menace us and our future, is the unification of our entire professional membership in this worth while cause. We must all be held together by the cementing influence of a common purpose, the cohesive force of a united aim.

Battles of this kind can not be won single handed nor by small groups. Nor can they be won by those who sit on the side lines or remain at home in cold indifference. Nor does the shouting of invectives or the writing of diatribes assist in any material way.

Our relations with our patients must be individualistic but our relations with each other must be group relations for the menaces that are inimical to our highest interests and threaten us and our profession are group menaces and can be successfully campaigned against only by group action of the most unified character.

There are 4000 registered physicians in Illinois who are not members of this Society. Those doctors are probably not unaware of the problems that medicine faces nor of the effect that the solution of these problems will have upon society in general and upon them personally. But as isolated individuals they are helpless and by remaining outside they are neglecting the one golden opportunity for united action in a common cause for the common purpose of self protection and self preservation.

In this state there is but one opportunity for unified effort against the vicious practices and systems that beset us; there is but one place where we can act as a collective group in our own behalf; there is but one organization in which the potentialities of medical strength can be converted into kinetic energy and utilized and that is the Illinois State Medical Society, with its 7000 members.

If the problems that confront medicine are

ever to be solved it is to organized medicine that we must look for the solutions. There and there only do we find leaders with a clear and comprehensive knowledge of these problems, crystallized out of the varied experiences and opinions of the present and the past; leaders with clear vision and high ideals, tinctured with conservatism and common sense as they plan for the future; leaders who realize the challenge of the times and accept that challenge with courage, resourcefulness, intelligence and faith; leaders who, if we work whole heartedly with them, will lead us to a place where we can justify the faith that humanity has always had in doctors.

Many years have passed since an erudite French physician said, "If ever the human race is raised to its highest practicable level intellectually, morally and physically, the science of medicine will perform that service."

I beseech thee then, that ye render unto medicine that which belongs to medicine, that there may be given unto medicine an opportunity to perform that service.

#### DISCUSSION

Dr. Thomas P. Foley, Chicago: To me, Dr. Farnum's paper reiterates and emphasizes the necessity of a compact unified organization. The potential strength of the physicians of Illinois, if every eligible one were a member of the Illinois State Medical Society, is unlimited. Their energy used in a common direction could achieve any goal set for accomplishment. The good the Lay Educational Committee of the State Society has done in furnishing approved apostles of medical thought and information to the lay people of the state through newspapers, talks to lay groups, and over the radio, cannot be estimated. Its value is measured by the return engagements and by the continuance of radio broadcasting.

What the members of the Illinois State Medical Society can do through organized effort has been demonstrated by the Legislative Committee of the State through its chairman, Dr. John Neal, a past president of the Society. Under his guidance and energetic leadership the onslaughts of cults and isms have repeatedly been defeated. This active co-operation of the members, extended in all directions, is the keystone in avoiding the pitfalls as clearly shown by Dr. Farnum. If "eternal vigilance is the watchword of liberty" then eternal vigilance and action is the watchword for the protection of medical practice as it relates to physicians and their private patients.

## THE FACILITIES FOR TEACHING LEGAL MEDICINE TO STUDENTS IN CHICAGO

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AND

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CHICAGO

We wish to report briefly the facilities in the City of Chicago that can be utilized by students of medicine and physicians in the study of legal medicine. The University of Illinois College of Medicine,—and that applies to other medical schools in Chicago as well,—is so situated that cooperation may be had from non-medical organizations which are engaged in attempting to solve the problem of crime or control it. These consist of the local and state police organizations, the office of the coroner, various sociological agencies and the local psychiatric investigators.

The University of Illinois College of Medicine is rather fortunately situated in this respect. In the immediate proximity are the Cook County Hospital with its divisions of pathology and psychiatry, the Cook County morgue with its medico-legal postmortem rooms, inquest rooms and laboratories for chemistry, toxicology and pathology functioning through the office of the coroner; the Institute of Juvenile Research, including the state criminologist and a staff of psychologists, psychiatrists and social workers. Within a short distance is the Northwestern University crime detection laboratory which specializes in the more unusual aspects of criminal investigation such as the identification of guns and bullets, the detection of deception, microscopy of hairs, fibers, etc., documents, examination and the use of ultra-violet light in investigational work.

On the second floor of the Cook County morgue are located the autopsy rooms for medico-legal autopsies and a suite of rooms for toxicological examinations, not only of material submitted from autopsies in cases of poisoning or suspected poisoning, but also the material obtained from patients such as stomach washings, hair and nails, urine and blood, and various drugs for toxicological investigation.

Approximately 1787 bodies are investigated yearly by the coroner's office in the Cook County Hospital and about 4790 bodies are examined by the coroner's physicians in the various districts in Cook County. This material, either from autopsy or from other sources submitted for toxicological examination may be utilized for teaching purposes as well as for investigatiye work. With the aid of the associate institutes of psychiatry, of juvenile research, the crime detection laboratory, and the state criminologist, the value obtained from the respective investigations may also be used for further study.

Our students, until a few years ago, received practically no training or information concerning legal medicine, apart from that received in the course of Medical Jurisprudence, which is often entirely different from that of Legal Medicine. We have in the last few years attempted to utilize the physical equipment that is at our disposal to familiarize not only the student, but the physician as well, with such knowledge as he may utilize in his contact with patients who die as a result of violence; and to acquaint him with the laws governing the dead human body. Deaths which require investigation are those due to murder, either by bullet or knife wounds and strangulation, suicide by the latter methods as well as by poisons, hanging, or drowning; accidental deaths as by automobile, railroad, fire, etc., as well as death following injury while at work, abortions, and infanticide. The coroner's office is also called upon to investigate so-called sudden deaths, that is deaths due to natural causes without medical attention.

If we but center our attention for the time being, around the medico-legal unit of the Cook County Hospital, we should like to briefly sketch just what happens when a patient 1. is injured and brought to the Cook County Hospital and dies some time after injury, or 2. a patient dying before being admitted to the Cook County Hospital, or 3. a patient who may be admitted to the Cook County Hospital on suspicion of poisoning, and dies some time after admission to the County Hospital. In the latter case, the stomach is washed and the contents are submitted to the toxicologist for examination, or urine or blood may be collected for toxicological investigation and, as in the case of arsenical poisoning, the



hair and fingernails are submitted to the toxicologist for study.

In the event of death, either as a result of bullet wounds or some other violent means, the body is taken to the autopsy rooms and an external examination of the body is made and the findings recorded. A description is made of all external signs of violence, entrance and exit bullet wounds are described and the height and weight, color of hair and eyes of the person is also recorded. The examination of the teeth, tattoo marks, scars or other marks of identification, has helped in many instances the identification of missing persons. A complete autopsy is then performed and the description of the organs is made and recorded in a special autopsy protocol. In some cases it is necessary to make histological examinations of one or more organs, particularly in cases of abortion. It was found necessary on several occasions to make bacteriological examination of heart's blood or fluid removed from the dead person. If the organs are to be submitted for toxicological examination there are put in special receptacles which are chemically clean.

If, in the event of a gunshot wound, the missile is recovered, the bullet is labeled and placed in an envelope which is properly sealed and a description made on the outside of the envelope, and this is then submitted to the ballistics department of the coroner's office for bullet identification.

It is sometimes necessary for the Bureau of Identification to make photographs of the dead body either at the scene of the accident or at the County morgue, and also fingerprint tests of certain individuals are made.

When the material is to be submitted for toxicological examination, as a rule the stomach and its contents, the liver, kidneys, and urine are removed. The urine is collected in a separate receptacle which has been thoroughly cleaned. The organs which are to be submitted for chemical examination are placed in chemically clean mason jars which have been covered, sealed, and labeled and given in person to the toxicologist or one of his assistants. A record is made of the patient's name and address, the date of autopsy, the age, pathological diagnosis, approximate length of illness if that is known, and the material which is submitted for chemical examina-

tion as well as a request for any specific test wanted. In cases of carbon monoxide poisoning the blood is submitted for chemical examination, and this is collected in chemically cleaned bottles which are properly corked and sealed. In cases of alcohol poisoning, aside from the usual organs and urine which are sent in for chemical examination, it is found necessary to submit parts of the brain for toxicological study. The coroner's chemist then examines the material submitted immediately after it is given to him or he places it in an icebox, which is under lock and key, and he may examine the contents at a subsequent time. At the end of the examination a written report is submitted to the physician who has performed the autopsy and to the deputy coroner who conducts the inquest, and one copy is kept on file in the coroner's office.

An inquest is held to determine by what means the individual came to his or her death and to attempt to establish the circumstances which resulted in death. The police at times will submit various bottles containing different kinds of drugs that may have been found in the room of the dead person and may have some bearing as to the nature of the death, and these are submitted to the toxicologist for examination. Guns, knives, ropes, various other appliances that may be found on the dead person, or that may have been removed from individuals suspected of having some knowledge of this crime are submitted for further investigation. This may consist of examination of fingernail scrapings for tissue, fibers, hair, blood stains, handwriting, fingerprints, and ballistic examination of guns and bullets. A suspected individual who may have knowledge of the crime, or is supposed to have some knowledge of the crime, may be submitted to the state criminologist, or to the physician in charge of the behavior clinic which is attached to the criminal court of Cook County for questioning; and recently the lie detector has been made use of in attempting to determine deception. We merely mention a few of these points in order to emphasize how various bodies functioning in and about the Cook County Hospital may be called upon to assist the state in solving crime.

The average physician or interne is possessed of very little knowledge as to what constitutes a coroner's case; who should be notified and what

materials are to be collected and saved; how evidentiary material should be handled. Such questions are constantly being asked not only by medical students, but by internes and physicians as well.

We believe that because of the increasing industrial hazards, because of the large number of accidents that occur in our active cities today, the question of legal medicine is becoming a more important one than would be indicated by the attention that has been given to it in the past. We wish simply to again call attention to the facilities which are available in the City of Chicago for the physician to utilize, not only in improving his knowledge concerning the subject of legal medicine, but also to familiarize himself with the various bodies that cooperate in attempting to solve crime. Such information is extremely valuable because it may avoid embarrassing circumstances, such as when a physi-

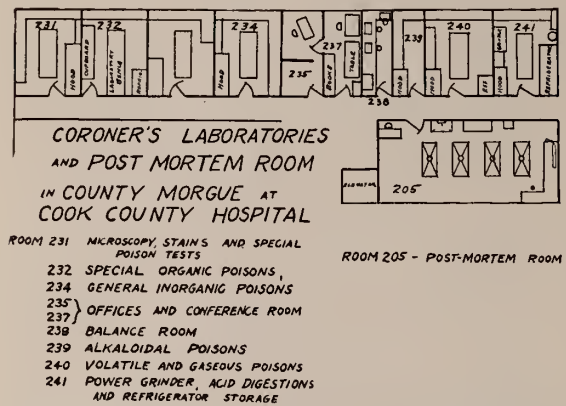


Fig. 1, Floor plan of Coroner's Laboratories and Post-mortem Room in County Morgue at Cook County Hospital, Chicago, Ill.

cian is called upon to testify as to his knowledge concerning the cause of death of a certain individual that he has seen, and is unable to give the proper information desired. The knowledge that one may gain from a study made in the various institutions in Chicago which are interested in the study of crime, may assist the physician not only in Chicago but in smaller communities so that he may properly make such necessary investigations which he may later in turn submit to the state which will help solve the mystery. We believe that the personnel of the various organizations in Chicago would be willing to cooperate and assist the physicians in better preparing themselves in the subject of legal medicine. Several times during the year special courses

may be arranged for certain groups of doctors, and individual visits to these institutes may be made at almost any time. The men in charge

TABLE 1.—TOTAL NUMBER OF CASES HANDLED BY THE CORONER'S OFFICE IN COOK COUNTY FOR 1933.

Month	Inquest	Inquest Autopsies	Certifi- cate	Certificate Autopsies	Total
January .....	295	94	230	10	525
February . . . .	261	75	246	8	507
March .....	318	111	210	20	528
April .....	336	120	209	22	545
May .....	376	139	241	26	617
June .....	335	132	213	25	548
July .....	358	92	191	12	549
August .....	348	123	192	14	540
September .....	328	106	179	19	507
October .....	355	89	248	39	603
November .....	318	102	199	33	517
December .....	344	86	247	25	591
Total .....	3972	1269	2605	253	6577

TABLE 2.—CORONER'S CASES HANDLED BY RESIDENT PATHOLOGIST AT COOK COUNTY MORGUE DURING PAST YEAR

MONTH	TOTAL CASES	AUTOPSIES
1933		
May .....	160	92
June .....	146	83
July .....	142	58
August .....	141	63
September .....	113	48
October .....	165	73
November .....	154	74
December .....	157	61
1934		
January .....	171	54
February .....	140	52
March .....	135	61
April .....	163	69
Total .....	1,787	788

TABLE 3.—TOXICOLOGICAL ANALYSES MADE IN COOK COUNTY CORONER'S LABORATORY DURING PAST YEAR.

Month	Antemortem analyses of vomitus, stomach washings, urine, blood, hair,	
	Postmortem analyses in Coroner's County Coroner's Pathologists.	in cases of suspected poisoning at Cook County Hospital.
1933		
May .....	56	63
June .....	30	32
July .....	32	56
August .....	26	59
September .....	27	55
October .....	37	64
November .....	44	55
December .....	44	37
1934		
January .....	44	42
February .....	31	33
March .....	42	42
April .....	44	37
Total .....	457	586



are always ready to answer any question or questions which the physician may be interested in. It is also hoped that a closer cooperation may be brought about between the lawyers and the law governing bodies, and the medical and scientific aspects of crime detection, so that the legal and the medical end may function as one unit.

#### SUMMARY

A brief outline has been given of the facilities which are available in the City of Chicago for the study of legal medicine. It is recommended that physicians avail themselves of the opportunity of becoming more familiar with the various phases of crime detection as well as information from autopsies on medico-legal cases. The facilities in Chicago for teaching legal medicine are made available to the medical students so that they may apply the information that they have learned concerning legal medicine when they become internes, and later when they become practicing physicians, not only in large cities but also in small communities.

It is recommended that a closer cooperation be brought about between the legal profession and the medical profession so that a better functioning unit will exist which will aid the state and the people in helping to solve crime.

### COW'S HORN FOR FIXATION OF FRACTURES: ITS STIMULATING EFFECT ON CALLUS FORMATION AND A SIMPLIFIED TECHNIC

EDSON B. FOWLER, M. D.

EVANSTON, ILL.

Only a very small proportion of fractures require open reduction and not all of these need internal fixation. Few open reductions were done prior to the advent of aseptic surgery and though since then great strides have been made in bone surgery, present results leave much to be desired. Frequently plates break, screws pull out, infection occurs and occasionally non-union. I set about therefore to find a better material and a simpler technic. Cow's horn was found to be strong, elastic, readily sterilized, and inexpensive. If absorbable, non irritating, and a stimulating factor in callus growth, it would

seem to be an ideal material for the internal fixation of bones.

After various experiments on dead bones, I tried cow's horn on living dogs. The results were so satisfactory namely, prompt, abundant callus with union and with considerable absorption of the horn within 90 days, that horn was employed on nine patients requiring open reduction with fixation. In all of these nine cases prompt abundant callus and bony union occurred without complications.

Because in the above nine cases, where horn had been used, there had been decidedly more callus formation than in a similar series of ten cases with internal fixation in which metal was used, I reviewed the literature in an effort to find an explanation for the apparent stimulation of callus formation when horn was employed.

Ackroyd and Hopkins<sup>1</sup> pointed out that cysteine which is abundantly available in horn, is essential for growth. Hammett and Reimann<sup>2</sup> showed that cysteine stimulates growth by causing increased mitosis. In their work on plants and animals, they demonstrated the stimulating effect of cysteine in markedly increasing the cell multiplication. Brunsting and Simonsen<sup>3</sup> of the Mayo Clinic treated with cysteine a varied assortment of ulcers, mostly chronic which had resisted treatment. They noted that cysteine stimulated growth of granulation tissue and proliferation of epithelial cells, and brought about a diminution of discharge with a clearing of secondary infection. Also bacterial growth seemed to be inhibited.

E. Dahl-Iversen<sup>4-5</sup> in a series of experiments on rabbits and guinea pigs, used horn as an internal fixation material. His conclusions were that horn did not retard bony union: that new formation of bone from the periosteum was much greater with horn than without it in the control animals. However he did not recognize horn as a stimulant to cell growth.

Hedri<sup>6</sup> reported experiments with glue (knochenleim) and stated that it produced adhesions and callus rapidly. In 47 cases out of 950 fractures, liquid glue was poured on the ends of exposed bones. Callus set in within a surprisingly short time. In old pseudarthroses cases, liquid glue was injected in and about the false joint. Here again in the glue was available cysteine an essential stimulus to cell growth.

Three other men have used cow's or goat's

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horn in a total of 21 fracture cases obtaining good union in every instance without complications. Prof. B. Mish of Russia tried horn on three cases and suggested its use. Lexer in Germany stated among other things, that horn was abundant, easily sterilized, strong, slowly absorbable, non-irritating, and finally a stimulant to periosteal and endosteal growth. His clinic reported nine cases with the use of horn each successful with no complications.

Boliarsky<sup>7</sup> used horn in nine cases, eight of which were old non-unions with pseudarthroses with more or less bone defect. Each case united; the bone defects were replaced with bone. He ran a series of nine control cases in which autogenous bone grafts were employed with no better results. He says in comparing the horn cases with the autogenous bone graft series, that his conclusions were that horn was the ideal material to use.

Horn<sup>8</sup> can readily be made into rods, pins, plates, etc. I employ horn in the rod form, either round, triangular, or quadrilateral, straight or curved, depending on the type of fracture and bone involved. For example, in fracture of both bones of the forearm, either single or multiple, the triangular rod tends to prevent rotation of the fragments. The elasticity also of the horn, in this difficult type of fracture, is very helpful in holding the radius and ulna well separated and consequently a good result both functionally and anatomically is assured.

*Technic in brief:* An incision is made somewhat to that side of the fracture selected for the drill hole. A good sized hole is carefully drilled through the cortex into the medullary channel a distance of one to three inches from the fracture. The hole is then reamed very obliquely toward the fracture so that the horn can be passed or gently driven through the obliquely reamed hole along the medullary canal well beyond the fracture. Usually the medullary spaces will require some reaming before the horn can be passed into the medullary canal and well beyond the break. The distance necessary will vary from one to several inches depending upon the size and length of the bone involved.

In the 30 cases including my own where horn has been used for internal fixation of fractures, it seems to have been an ideal material for strength, elasticity, absorbability, and ease of sterilization. In addition it was found to be

non-irritating, mildly bactericidal and stimulating to callus growth. The simplified technic is relatively easy to perform, saves time and diminishes trauma and shock.

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#### DISCUSSION

Dr. Fred W. Slobe, Chicago: Dr. Fowler's excellent presentation, in addition to advocating the use of a promising material in the internal fixation of fresh fractures, opens up an especially interesting trend of thought in connection with the operative treatment of non-union.

Today, I believe, the favored method of internal fixation for non-union is some type of autogenous graft. Of course, there are certain essentials in all operations for non-union such as the thorough excision of all fibrous tissue, complete freshening of the bone ends, accurate reduction, fixation, and subsequent immobilization. These essentials will often effect a cure in the simpler instances (caused, for example, by interposed tissue, unsatisfactory reduction, or incorrect primary management) no matter what type of material is used for internal fixation and sometimes without any internal fixation whatever. The more serious type of non-union, however, the typical pseudarthrosis, is that in which, for reasons unknown, there is a physiologic inertia or deficiency in the reparative processes in the tissues of the host. This may occur in healthy persons with a fracture accurately reduced and correctly treated. Autogenous grafts have superseded other methods largely because of their stimulating effect on these essential reparative processes. But in the adult, autogenous grafts have little viability; indeed, instead of any appreciable bone growth from them, bone grows into them by a process of "creeping substitution," while they are re-vascularized from the adjacent tissues, the bone of the original graft gradually degenerates. Because autogenous grafts are amenable to such substitution and absorption, however, and because they have some stimulating action on the adjacent tissues, they are generally preferred to the inorganic and non-autogenous fixation materials. The use of the autogenous graft, however, prolongs the time of the operation, causes considerable additional local trauma, and demands a degree of skill not always possessed by those performing bone surgery. The use of the electrical



saw is not without danger to the tissues of the patient, not mentioning the surgeon and his assistants. All of these factors may tend to increase the likelihood of subsequent infection. The simpler the operation perhaps the better, providing the requisite essentials are carried out.

In the future, no doubt, more attention will be directed toward solving the unknown factors responsible for the inertia of the reparative function in these troublesome instances of non-union and less attention to the exact type of internal fixation employed. In the endeavor to stimulate repair without open operation various methods have been employed; some have injected blood into the site of the old fracture; others have advised multiple drill holes into the fracture site; two surgeons in Paris have advocated the injection of a colloidal suspension of chalk and silica, claiming increased callus formation thereby; and, as Dr. Fowler has mentioned, Hendri of Budapest has advocated the similar injection of glue. Dr. Easton of Peoria has used glue with quite satisfactory results. It is questionable, of course, whether such methods could suffice in instances of true pseudarthrosis. It suggests, however, that if a repair stimulating substance could compose the material used for internal fixation we might be approaching the ideal combination. Horn, advocated by Dr. Fowler, seems to have these qualifications, as it is absorbable, non-irritating, and seems definitely to stimulate callus production.

Cysteine with its sulphhydryl radical has been shown to be markedly stimulating to tissue proliferation in sluggish wounds and ulcers. Bone is not a highly specialized tissue being merely a differentiated tissue of mesoblastic origin. Bone repair does not occur by direct outgrowth of bone from bone and while true metaplasia of bone in non-bony tissue rarely occurs, the soft tissues at the fracture site play a vital role in bone repair and are closely linked with the reparative mechanism. It is not illogical to assume that a substance which stimulates tissue repair elsewhere might stimulate tissue reaction in old fractures. Horn, composed largely of keratin which in turn contains cysteine with its sulphhydryl radical should have this effect and Dr. Fowler's experimental and clinical investigations clearly indicate its definite osteogenic value.

The technic is simple. There is a minimum of time and trauma. The incision is planned according to which end of the bone is selected for the aperture. Periosteum is not stripped up, the bones are handled relatively little, and only a few simple instruments are required. A typical instance of pseudarthrosis of the tibia, which I operated upon recently, using this method, shows abundant callus production although it is too early to evaluate the final result.

Dr. Fowler is to be congratulated upon bringing this procedure to our attention and I am sure it merits and will undergo extensive use.

Dr. Rupert M. Parker, Chicago:

In the last February number of *Surgery, Gynecology*

and *Obstetrics*, Dr. Mumford of Indianapolis states that he found described in literature sixty-two varieties of internal fixation of fractures, and he added a sixty-third of his own. Now comes Fowler with a sixty-fourth method. We should always gladly welcome a new device which is an improvement over the old.

The cow's horn consists of two parts, a core or pith of cancellous bone and a shell or cortex covering it. The powder horns used in connection with the old muzzle-loading firearms were fashioned from these shells.

The cortex is of cardboard-thinness at the base and gradually thickens toward the tip of the horn, where it reaches a thickness of one-fourth to one-third of an inch. This material can be readily cut into pegs, rods and nails with a jack-knife. Heating the horn in boiling water facilitates the cutting.

While assisting Dr. Fowler in the laboratory I have often remarked the ease with which the horn could be applied to internal fixation, and I have speculated as to whether the virtue of the device lay in the simplicity of the method or the dexterity of the operator. I feel sure that both play a part, but that anyone schooled in other methods of internal fixation will find this one surprisingly simple and efficient.

Some methods of internal fixation, such as that of the famous Lane plate, require specialized and costly apparatus. The few instruments needed for cow horn fixation can, in emergency, be assembled at the cost of a few cents in any cross-road hardware store.

Cow's horn is exceedingly tough, and I cannot recall ever seeing a piece break. It holds the fragments in good apposition, but its flexibility and elasticity allow more or less movement of the fractured ends, and that stimulation may contribute to callus formation quite as much as the cysteine.

Dr. Dwight Clark, Evanston: I would like to ask Dr. Fowler whether he uses the horn in suppurative non-unions.

Edson B. Fowler (closing the discussion): As to the use of horn in an infected field, in reply to Dr. Clark, I have had no experience. Probably horn would be quite as satisfactory in the presence of infection as autogenous bone. The horn splint inserted as already described, is easy to apply and gives a very satisfactory internal fixation. The elasticity of the horn aids in its application, lessens the liability of further fracturing the bony fragments and in the forearm with both bones broken, the elasticity aids materially in holding the radius and ulna well apart.

My method of fixation (cortico-medullary) requires a minimum of trauma and it employs the surgeon's and his assistants' hands well away from the immediate open wound. The fingers are busy applying retractor, drill, reamer, bone elevator and bone holding instrument. Thus hands are not tempted to touch directly either bone or soft parts. In this way danger of infecting the operation is greatly reduced."

## THE ROLE OF THE HYPOPHYSIS IN THYROID SYNDROMES

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The existence of an interrelationship between the hypophysis and thyroid has been recognized for many years. This interaction has been roughly expressed as "synergistic," meaning that each of these glands has a stimulating effect on the other. Important progress has been made recently in the physiology of this relationship by the demonstration beyond doubt of the so-called thyrotropic hormone of the anterior lobe of the hypophysis. It has been found that extracts of the anterior lobe are capable of preventing atrophy of the thyroid gland following hypophysectomy in experimental animals. It has also been found possible to produce, by daily intraperitoneal implants of fresh anterior lobe tissue, in normal guinea pigs, the entire syndrome of chronic hyperthyroidism including high basal metabolic rate, exophthalmos and the macroscopic and microscopic picture of "toxic goiter."<sup>1</sup>

These experimental findings cannot fail to influence our clinical views on the etiology, pathology and therapy of thyroid syndromes. It appears that syndromes of hypo- and hyperthyroidism may be due to deficiency or hyperactivity in the production of the thyrotropic hormone of the anterior lobe. Accordingly it will be necessary to differentiate between primary and secondary thyroidism. In primary thyroidism the original pathology is in the thyroid gland; if signs of disturbance of other endocrine glands occur, they are due to the effect of the abnormal thyroxin supply on the function of other glands. In secondary thyroidism, the original pathology is in the hypophysis; the disturbance of the thyroid gland is due to an abnormal supply of the thyrotropic hormone of the anterior lobe; glandular signs other than those due to the thyroid disturbance are caused by simultaneous involvement of other functions of the hypophysis.

The necessity of making a similar distinction has long been recognized in cases of sex gland disturbances. Thus in anomalies of menstruation it is a routine procedure to search first for pathology in the genital organs. In absence of

local pathology, the case is then interpreted as "functional disturbance," with the assumption that it depends on some disturbance in the production of the pituitary sex hormones.

It must be admitted that with our present incomplete knowledge of the interrelationship of the endocrine glands, a differential diagnosis between primary and secondary thyroidisms cannot be made in every case. But an effort to establish a diagnosis will be worth while for several reasons. In the first place, by collecting a number of cases of clear cut primary thyroidism and comparing them with a group of cases of clear cut secondary thyroidism, we shall learn more about the mutual effects of thyroid and pituitary and shall be able to utilize this knowledge in the interpretation of cases of thyroidism in which the primary pathology is obscure. In the second place, our therapeutic efforts should benefit by a correct differential diagnosis. It is clear, for instance, that we cannot expect complete results from thyroid therapy in a case of secondary (pituitary) myxedema; in fact, such therapy is illogical and probably harmful. We shall concentrate our efforts, in these cases, on the hypophysis. Finally, the recognition that it is necessary to differentiate between primary and secondary thyroid disturbances may lead to the development of special diagnostic methods for this purpose. It is possible that the demonstration of the presence or absence of the thyrotropic hormone in the blood or urine of "thyroid" cases will enable us to localize the disturbance in practically every case.

In this paper, cases of thyroid syndromes, such as "myxedema," "cretinism," "hyperthyroidism," are described and, on the basis of closer analysis, interpreted as secondary thyroidisms of pituitary origin. An attempt is made to demonstrate the usefulness of such interpretation in actual cases.

1. *Case of "myxedema."*—Mr. A. H., 43 years old, has four children. Family history unimportant. He had enjoyed good health until two years ago, when he noticed a gradually increasing consciousness of fatigue, weakness, drowsiness, and lack of mental concentration. He lost all his body hair, including the pubic hair. His sexual impulse was entirely lost. A diffuse swelling developed in hands, feet and eyelids. He did not perspire, even in hot weather. He had lost all his teeth in the past 10 years, most of them in the past two years, because of pyorrhea and caries. His weight was 220 lbs. two years ago; he had lost 60 pounds in the past two years. He had frequent headaches. Examination showed a fairly

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well nourished man with a hard, diffuse swelling of the skin of hands, feet and face, dry skin, brown pigmentation of the skin on face and palms, and almost complete lack of body hair. The penis was of normal size, but both testicles were smaller than normal and soft. No thyroid gland could be palpated in the flabby neck. There was a moderate exophthalmos with positive Graefe sign. The blood pressure was 90/65. B.M.R.



Fig. 1. Case 1. "Myxedema."

was minus 31%, blood sugar 66.8 mgm. %. The specific gravity of the urine was 1.015; albumin and sugar negative. The blood contained 4.4 million red blood cells, 85% hemoglobin; white cell count 8800. Wassermann reaction in blood negative. The muscles of the extremities were flabby; his grip on the dynamometer registered 25 to 33 mm (normal muscle power 90 to 100 mm). X-ray films showed a sella turcica of normal size and outline. The fundus of the eyes and the visual fields were normal.

He told us that some time previously the diagnosis of myxedema was made by a physician, and dried thyroid gland was prescribed, which made his condition worse; his headaches became more severe, he lost weight more rapidly, had constant palpitation of the heart and became so weak that he was unable to walk. He reported the same effects after taking gr. i thyroid substance daily for a week as prescribed by us.

A few weeks later while under our observation, he returned with a new complaint, polydipsia and polyuria. The 24 hour amount of his urine then was 4.5 to 6 quarts with a specific gravity of 1.005 to 1.003. This polyuria was relieved by hypodermic injections of pituitrin and returned when these injections were discontinued. Powdered whole pituitary gland by mouth in large amounts—gr. 30 to 40 daily—had an unmistakable effect on his chief complaint, the muscular weakness. The patient, who previously was so weak that he had to be assisted when he wanted to stand up, soon returned to his job as a private chauffeur. His grip then

registered 70 to 80 on the dynamometer. He gained weight rapidly, 8 pounds in the first 10 days, the myxedema of the skin disappeared, and the blood pressure rose to 120/80. When he discontinued the treatment, the extreme weakness, loss of weight and other symptoms returned within a short time. However, after he had continuously taken large amounts of the gland for three months, he remained in fairly good condition for almost half a year without any medication. There was no effect at any time on the basal metabolism, on the sexual power, or on the hair growth.

*Interpretation.* The tentative diagnosis of idiopathic myxedema due to thyroid deficiency seemed on first consideration to be quite justified in this case. All the symptoms, signs and laboratory data appeared to be consistent with this diagnosis. Slight discrepancies, such as the rapid loss of weight and the intolerance to even small amounts of thyroid substance, were considered simply as "unusual features." No particular importance was ascribed to the exophthalmos, as it is known that occasionally exophthalmos develops with myxedema following removal of a toxic goiter.<sup>2</sup> However, the appearance of a typical diabetes insipidus could not be easily reconciled with this diagnosis. Neither was it a satisfactory assumption that two entirely independent diseases—myxedema and diabetes insipidus—existed simultaneously in this case. It remained then to consider the possibility of a primary atrophy or sclerosis in the region of the hypophysis, causing both diabetes insipidus and the "myxedema" syndrome. The latter then is really a summation of thyroid, gonadal, and adrenal insufficiencies due to deficient production of the specific anterior lobe hormones. The remarkable effect of pituitary therapy on some of the symptoms in this case appears to support this interpretation.

There are several interesting minor features in this case. One is the lack of beneficial effect of thyroxin combined with intolerance to it. We have observed this in several other cases of secondary hypothyroidism of pituitary origin, in contrast to primary hypothyroidism, where thyroxin is usually better tolerated and gives good results. This difference in response to thyroxin, if proved to be characteristic for the two types, may yield a valuable clue both to the diagnosis and the pathogenesis of these conditions.

Another interesting experience in this case is the beneficial effect of powdered whole pituitary gland by mouth. It is known that the thyro-

tropic and gonadotropic anterior lobe hormones are inactive when given by mouth. However, the effect of oral pituitary medication on the muscle power and blood pressure in our case suggests that the adrenotropic hormone may be absorbed by the gastrointestinal tract.

Finally, the myxedematous changes of the skin in a case of hypothyroidism of pituitary origin deserve comment. They show that even this sign is not exclusive for primary hypothyroidism. We have seen myxedema of the skin in another case of pituitary hypothyroidism, which too was tentatively diagnosed as "idiopathic myxedema," until



Fig. 2. Case 2. "Sporadic Cretinism." Before and six months after beginning pituitary treatment.

x-ray films disclosed a greatly enlarged sella turcica with bone destruction, and examination of the visual fields showed bitemporal hemianopsia.

2. Case of "sporadic cretinism."—Miss T. B., 16 years old. Family history unimportant. Physical and mental development extremely slow since early childhood. Began to talk at 2½ years. Had scarlet fever at 6. Present complaint: Physical and mental underdevelopment; amenorrhea. Height and general appearance that of an 8 year old child. Height 51.5", weight 70 lbs. Extremities relatively short, trunk long, head large, bridge of the nose depressed. Dull, cretinoid expression of face. Skin dry; body hair, including axillary hair and pubic hair, absent. Teeth irregular with marked spacing of the upper central and lateral incisors; six deciduous teeth still retained. The breasts

undeveloped. External genitals infantile. Thyroid gland not palpable. Blood pressure 95/65. Hands rather large, cold and livid, nails poorly developed. Intelligence quotient .69, indicating a mental age of 11 years. X-ray films of the wrist showed marked delay in ossification. The sella turcica larger than normal without bone destruction. Frontal sinuses absent. No radiological evidence of a persistent thymus. B.M.R. minus 30.3%. Glucose tolerance normal.

*Course and therapy.* Powdered thyroid gland was prescribed, gr. ii daily. This was changed after two weeks, to gr. i daily, because of tachycardia, tremor, and nervousness. She continued to take gr. i thyroid for 6 months and has grown 1.5," with no change otherwise. A year later re-examination showed no change, except that she had grown 0.75". The anterior pituitary-like hormone of pregnancy urine (Antuitrin S, Parke-Davis) was then given in daily hypodermic injections, 600 rat units per week. After three weeks she exhibited marked development of the breasts and of the external genitals, pubic hair appeared, and she had a normal menstruation lasting four days, the first menstruation in her life. She was then 18 years old. Patient has been menstruating regularly, at 28 day intervals, ever since. A year later: B.M.R.—13.1%. Intelligence quotient .70; ossification in the wrist had shown slight progress. Height 54".

3. Case of "sporadic cretinism."—Miss L. C., 14 years old. Both parents, two sisters and three brothers rather small, but otherwise normal and healthy. Normal birth; normal size at birth. Slow development first noticed at end of first year. Talked and walked at 2.5 years. Only minor children's diseases. Retarded somatic and mental development; amenorrhea. Patient had the general appearance of a 6 year old child. Height 47.5", weight 62 lbs. Body proportions: long trunk, short extremities. Infantile expression of face. Skin dry and rough. Much lanugoid hair along spine; dense eyebrows; no axillary or pubic hair. Small hands, poorly developed nails. Teeth small and irregular, 8 deciduous teeth retained; thyroid not palpable. Breasts and external genitals infantile. X-ray of wrists showed markedly delayed ossification. Intelligence quotient .47, indicating mental age of 7 years. B.M.R.—30%. Glucose tolerance normal. Sella turcica slightly enlarged, no deformity.

*Course and treatment.* Gr. i powdered thyroid gland daily was prescribed but was discontinued after 4 weeks because of tachycardia. Antuitrin S (Parke-Davis) was then given, hypodermically, two or three times a week, 200 to 300 units a week, for 6 months. Three weeks after the last injection patient had her first menstruation lasting 10 days. She has been menstruating at 5 to 6 week intervals ever since. There is a marked development of the breasts, some pubic hair has appeared, she has grown 2.5". There is no change in the intelligence quotient or in the B.M.R.

*Interpretation (Case 2 and 3).* Both these cases exhibit all the cardinal signs of infantile hypothyroidism and hypopituitarism. But where



is the primary disturbance localized? It may be a congenital aplasia of the thyroid with subsequent deficiency of the hypophysis, in which case



Fig. 3. Case 3. "Sporadic Cretinism." Before and eight months after beginning pituitary treatment.

the diagnosis is "sporadic cretinism," or it may be a congenital aplasia of the hypophysis with consecutive atrophy of the thyroid, in which case one would make the diagnosis of pituitary infantilism with secondary hypothyroidism.

A trial of thyroid therapy was unsuccessful in both cases. The patients did not tolerate even moderate amounts of thyroxin, and smaller amounts failed to produce noticeable effects. The failure of this therapy may be considered as evidence against a primary thyroid etiology in these cases, although other possible explanations cannot be excluded. On the other hand, pituitary therapy was strikingly successful, at least in so far as stimulation of the ovaries was concerned. This experience does not help us to decide the question of the primary etiology but it does indicate that the sex glands can be stimulated by way of the pituitary, regardless of the uncertainty of the primary etiology.

With the menstruation once established, these patients continued to menstruate regularly without any further medication. This stimulation

demonstrates the power of ovarian hormones on the sex hormone apparatus of the anterior lobe. Neither the growth hormone nor the thyrotropic hormone apparatus was stimulated, indicating the independence of these functional units from the sex hormone apparatus.

Thyroid therapy, when started in the first or second year of life and continued throughout the developmental age, is frequently strikingly successful in cases like these. Improvement is soon noticeable on symptoms due to an absence of thyroxin, such as protruding abdomen, swelling of tongue, myxedema of skin, eruption of teeth, appearance of ossification centers, mental development, enuresis; growth and sexual development may proceed more or less normally, indicating that early thyroid therapy may save the hypophysis from consecutive degeneration. On the other hand, little or no effect is noticeable on the mental backwardness, on growth and on sexual development when thyroid therapy is started in later life. It is highly interesting that even then pituitary sex functions can be revived through pituitary therapy, as seen in our two cases.

4. Case of "juvenile hyperthyroidism." Wm. H., 8 years old. Both parents, three sisters and one brother of normal proportions and healthy. Natural



Fig. 4. Case 4. "Juvenile Hyperthyroidism."

birth. First teeth at 6 months. Walked at 15 months, talked at 12 months. Abnormal growth noticed at 6 months. Had mumps, whooping cough and measles. Complaint: weakness of legs, occasional attacks of nausea and vomiting.

Examination reveals a very tall, extremely thin boy. Height 63 inches, weight 65 pounds. Relatively long extremities, short trunk, large head, small lower jaw. Left upper and lower extremities longer than right. Both great toes abnormally long. Marked abnormality of the sacro-iliac joint, with a dorsal displacement of the sacrum at a slight angle to the spinal column. Penis of normal size; both testicles in scro-

tum, slightly smaller than normal. Thyroid gland diffusely enlarged, soft, slightly pulsating. Heart beat strong; pulse 114, regular. Skin moist. There was a noticeable tremor of the hand with intermittent jerks. Exaggerated deep reflexes. X-ray films showed that the diaphyseal ends of the radius and ulna were irregular in contour; ulnae rather short. There was an epiphysis at either end of the metacarpal of each thumb, and at the proximal phalanges of both thumbs, middle and ring fingers. The great toes on each foot, including the metatarsal bone as well as the phalanges, were large and long. There was an irregularity in the contour of the distal third of each tibia and fibula. The sella turcica was rather large but probably within normal limits of size, shape and outline. B. M. R. +21%, on repeated tests. Blood sugar 103 mg %. Glucose tolerance normal. Wassermann negative. Intelligence quotient .90 (mental age 7 years, 2 months).

*Interpretation.* This patient presents the picture of infantile giantism with acromegaloid features, combined with the syndrome of hyperthyroidism. Some years ago this case would have been probably interpreted as "polyglandular" disturbance. We believe it is a case of hyperpituitarism with overproduction of the growth hormone and thyrotropic hormone, while the sex hormone apparatus of the anterior lobe is intact or deficient. This condition is comparable with the hyperthyroidism frequently seen in the first stage of acromegaly in adults; the latter, however, is accompanied with hypergenitalism rather than hypogenitalism.

While it is logical to assume in this case that the hyperthyroidism is secondary and of pituitary origin, a distinction between primary and secondary hyperthyroidism may be difficult, if not impossible, in the absence of such striking signs as acromegalic changes. In juvenile hyperthyroidism, fast growth of the patient is probably an indication that the hyperthyroidism is of pituitary origin, because in experimental hyperthyroidism of animals, brought about by feeding with thyroxin, the growth is inhibited rather than accelerated. In the hyperthyroidism of adults, acromegaloid changes or diabetes insipidus which occasionally complicate the picture may give a clue to the diagnosis. The genital abnormalities, which are frequently observed in adult hyperthyroidism, may not definitely indicate pituitary origin of the hyperthyroidism, as such changes may occur to some extent in primary hyperthyroidism. Whether an accompanying diabetes, which is rare, or decreased glucose

tolerance, which is very common, indicate pituitary origin of hyperthyroidism cannot be definitely stated at the present time. The same is true for the interpretation of the signs of an increased adrenalin output frequently encountered in hyperthyroidism.

The consideration that toxic goiter may be of pituitary origin has already brought about some practical results. Therapeutic x-ray irradiation of the region of the sella turcica has been found to be beneficial in cases of intractable toxic goiter which did not improve permanently after repeated thyroidectomies. Also, hormonal inhibition of the anterior lobe by Antuitrin S has favorably influenced toxic goiter in certain cases.<sup>3</sup> Proper selection of cases, on the basis of a more accurate differential diagnosis between primary and secondary hyperthyroidism, and more efficient means of inhibiting the thyrotropic apparatus of the anterior lobe may lead to important changes in the therapy of hyperthyroidism.

#### CONCLUSIONS

It is necessary to differentiate between primary and secondary thyroid disturbance. The latter is defined as due to abnormal supply of the anterior lobe thyrotropic hormone.

The possibility of such differentiation and its difficulties are illustrated by cases of hypo- and hyperthyroidism observed by the author, and the practical importance of this differential diagnosis is discussed.

55 E. Washington Street.

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#### DISCUSSION

Dr. Garm Norbury (Jacksonville): Dr. Rony has shown us some of the interesting relationships which exist between thyroid and pituitary as well as other glands.

In the present day, I think there is increased interest in the functions of the anterior lobe of the pituitary. Also by reason of pressure perhaps that is sometimes brought to bear through literature and sometimes salesmen for the use of anterior lobe substance, it is well to review just for a minute the essential primary functions of the anterior lobe so that we may know when we are going to use this substance, and just what we are using it for.



The essential functions, I think, as generally accepted, are those related to statural growth, to sexual development, and as also was demonstrated in this paper, to thyroid activity the interrelationship was brought out.

It has been known for sometime that the thyroid and pituitary seem to have much in common. In particular, the lowering of carbohydrate tolerance with deficient secretion, and in the absence of these glands the lowering of body temperature, the retardation of growth and the atrophy of sex glands, those effects as common to both, either in congenital or acquired conditions.

Larson found (in experimental work some time ago) that anterior lobe feeding in rats abolished the effect of thyroidectomy. Allen suggested that the pituitary gland is necessary for the utilization of iodine in the thyroid. Hoskins found that in the feeding of anterior lobe pituitary to tadpoles metamorphosis occurred just as in thyroid feeding. We are gradually acquiring, through experimental and clinical knowledge some more information, as Dr. Rony says. We cannot be empirical, or too dogmatic. We have to feel our way, but the more we can work out the relationship between these glands, the better we shall be able to treat individuals and be of some help to them when they show conditions such as he so clearly presented in his paper.

Dr. W. O. Thompson, Chicago: I should like to ask Dr. Rony whether the striking development of the breasts in the last girl which he showed appeared six weeks after the administration of the pituitary preparation was started, or whether this picture was taken some time later.

We have observed the development of several cretins over a period of years, and have noted that while sexual development occurs late, it does occur in mild cases even in the absence of thyroid function. We have used a "pituitary like" preparation similar to the one Dr. Rony has used but manufactured by a different company, and have found that in some instances it appears to cause the onset of menstruation. However, we have observed a clear cut increase in the size of the breasts which could with certainty be attributed to this medication.

It seems to me of the greatest importance to be sure that changes that occur are the result of the treatment used.

The great difficulty in work of this sort is to secure good controls. It is very difficult to know precisely what will happen to a given individual over a period of years without any treatment.

Dr. Rony: In one of these cases the first menstruation was established after six weeks treatment. However, there was a noticeable change in the size of the breasts even previous to that. The first effect we noticed, two or three weeks after starting pituitary treatment, was the response of the breasts. Then three weeks later the patient began to menstruate. The second photograph of this patient was taken about a half year later.

## WHY THE MEDICAL COMMISSION?

T. B. WILLIAMSON, M. D.

Department Surgeon, Department of Illinois, American Legion

MT. VERNON, ILL.

Mr. Toastmaster, Distinguished Guests and Members of the Medical Commission: I am very happy to be with you tonight. This vast audience is a great inspiration to me as a medical man and as a Legionnaire. We have, within the American Legion, one of the finest groups of medical men within the confines of the State of Illinois. The great surprise to me is that it required 12 years after the organization of the American Legion for the Department officers to realize the importance and the significance of the medical profession. There is no group within the American Legion that carries as much influence, is as well educated, or can be of as much assistance in the problem of rehabilitation of the disabled veteran. Rehabilitation is a medical problem, and is one in which every medical man should be interested.

I want to say a few words about the organization and its inception. The Medical Commission of the Department of Illinois was born in Peoria at the Department Convention in 1931, under the able direction of our colleague, Dr. F. O. Fredrickson, who was Department Surgeon that year. He conceived the idea that the medical men of the Legion should be organized to get behind the movement to protect the interests of the disabled veteran, the American Legion, and to bring about full co-operation with organized Medicine. The organization consisted of 1 Department Surgeon, 5 Division Surgeons, 24 District Surgeons, 102 County Surgeons, and 1 Surgeon for each Post. The organization is practically complete throughout the state, which gives us approximately 1,000 medical men in this organization. Each Department Surgeon, since 1931, has worked diligently to complete this organization. The requirements for a physician to be a member of the Commission, Department of Illinois, are: First, he must belong to some medical society within the State of Illinois; Third, he must be a Legionnaire.

There have been a few things that have been responsible for the lack of interest on the part of the medical men. I want to get this program

before you and to refer to one point of legislation that happened a few years ago, known as the D. A. Law. It was very unpopular with medical men. I want to say to you men, without fear of successful contradiction, that the American Legion had nothing to do with it. It was strictly an administrative or political law—a substitute for the Legion program. It was unfavorable toward organized medicine and we of the Legion did not believe in it. It was well for the welfare of the disabled veteran that organized medicine assumed its position in the American Legion. The medical men are the greatest patriots we have. They gave more to the service of the people, the state and the nation than any other organized group and received less compensation. Therefore, a medical man myself, I am vitally interested in the disabled veteran, the American Legion, and in Organized Medicine. I want to say to you that in this problem of the Medical Commission, organized medicine is looked to and cared for.

We have 300,000 veterans in our state. These men are human beings, just as you and I are. They must be treated by someone. If they are indigent patients, you do not want to see them without care. We do not want to see any man who defended the flag of his country classified as a pauper. He should be a Federal charge because this war was not a community affair or a state affair, it was a Federal affair, and therefore, the responsibility of caring for the injured veterans becomes the responsibility of the government. There is a great field, along with the American Legion for organized medicine to step in and take part in this program.

We of the Commission of the Department of Illinois oppose the further building of government hospitals, as a survey of recent origin showed 319,000 vacant beds in public and private hospitals throughout the United States. These hospitals are used for our fathers, mothers, brothers, sisters, daughters and sons, and if they are good enough for the entire family, they should be recognized for the treatment of the disabled veteran. It has been stated by those who oppose the program of the Medical Commission, Department of Illinois, that it would encourage the return to the old contract practice between the government and the local physician. Your Department Surgeon wishes to state that there is nothing in the program of the Medical Commis-

sion that refers to or implies a return to the contract practice, and he wishes further to state that it is entirely foreign to his mind.

The five objectives of the Medical Commission program are:

1. To effect close contact between the American Legion and the medical profession through the Veterans' Service Committee of the Illinois State Medical Society.

2. To study carefully all problems of mutual interest to the veteran and organized medicine.

3. To assist Service Officers from a medical standpoint, in proving Service connected disabilities, in order that the cases of deserving veterans may be made compensable.

4. To guide the health activities and welfare work of the Legion in such a way as to prevent misunderstanding between the Legion and the County Medical Societies in their respective communities.

5. (a) That we are in accord with the present law and regulations that provide hospital treatment and out-patient treatment for all Service connected disability cases of all war veterans with honorable discharge, and that we further recommend that the same treatment be available for all war veterans unable to pay.

- (b) That we recommend that all acute critically ill cases of all war veterans with honorable discharge and with Service connected disability, be treated in the community in which they arise by an approved physician of the veteran's choice, in home or local hospital, and that a reasonable fee be paid by the Government to the physician in charge and hospital, upon the presentation of the bill, O. K'd by the President of the County Medical Society in which the emergency occurred and that we further recommend that the same treatment be available for all war veterans unable to pay.

- (c) That we recommend that all war time veterans with honorable discharge and unable to pay for treatment who are suffering with chronic constitutional diseases and injuries be afforded Government hospitalization upon the request of the veteran or his conservator.

I have caused to be placed at each one of your plates a copy of this program. I would like for you to take it home and to study it. If there is anything that is not clear, write to me. This program has been approved by the Rehabilitation Committee of the American Legion, Department



of Illinois, the Council of the Chicago Medical Society, and the Council of the Illinois State Medical Society.

We are not organized to fight or to hurt anyone or any organization. We are organized to serve as an adjunct to the present Legion organization and to bring to organized medicine that which is justly due it. You men are all heavy taxpayers. There is no one more sought after than the doctor. They come to you for advice in everything. When these veterans come to you, I ask you to be kind to them. Most of them are sick and need advice. When you find a man sick mentally, be kind to him. We have a few gold bricks. Be careful and do not be in too much of a hurry to turn them away, because you may find one who is critically ill. You men who belong to this organization, I ask you to go into your Posts and into your County Medical Societies and talk on this program. Talk to your Post on sanitation and assist your Department of Public Health in the immunization program, and through that co-operative spirit in the community you will build for your Legion an honorable reputation.

### THE USE OF BASE IN PRISM IN THE TREATMENT OF MYOPIA

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*Classification:* Myopia may be divided into three classes or types,<sup>1</sup> 1. axial myopia, in which globe is too long, or longer than the accepted normal dimension; 2. refractive myopia, in which the length of the eyeball is normal but the refractive power is greater than the normal eye; 3. combination myopia where the length of the eyeball and the refractive power are both "high normal" or greater than normal.

A scrutiny of the literature discloses a diversity of opinion as to the cause or conducive conditions, each one of which may contribute something in a small way, but none of which point authoritatively and convincingly to the real cause of myopia.

We believe a good theory, which has been partly proven, upon which a good working hypothesis can be formulated, is the one that all people with normal eyes have a condition of hyperopia at birth and the development of the eye is regulated by some relation between the power of refraction and the length of the globe. The activity<sup>2</sup> of the ciliary muscle, then would naturally be the regulating force.

Another theory, report of which we have not observed in the literature, is that the length of the eyeball is a racial characteristic, the same as the height of a group of individuals, some taller, some shorter than the average. The eyeball, then, attains a certain length which is regulated by hereditary tendencies and general metabolism, and in no way influenced by the condition of refraction. The action of the ciliary muscle in producing a greater or lesser refractive power in the lens, tends to direct the development of its refractive power to the strength necessary to meet the individual need.

*Causes:* As stated above, the literature of today presents a wide diversion of opinion as to the cause or causes of myopia. The question of heredity is frequently discussed. There can be no question but that heredity plays a certain role in the initial cause of myopia, but there is much doubt that myopia is inherited per se. There is, perhaps, rather the inherited tendency for myopia to develop. A defective ciliary muscle<sup>3</sup> or a weakly constructed sclera may be examples.

It is claimed<sup>4</sup> by some authorities that myopia has no relation to the amount of work required of the eye, but it is the direct result of inherent tendencies on the natural body growth, and cite the type of early childhood,<sup>5</sup> which is distinct from the so-called school myopia.

The natural eye<sup>6</sup> is considered to be full grown at the age of eight, and any elongation of the eye after that age should be regarded as pathological. Progressive myopia usually manifests itself at about the age of twelve.

High myopia<sup>7</sup> should be considered a disease of the eye. Its causes have been given as 1. mechanical; 2. hereditary; 3. acquired, but this classification is not broad enough as many named causes do not fit into it, while others may come under more than one heading.

Progressive myopia<sup>8</sup> is said to be present in seventeen per cent. of all cases of myopia.

Read before Section on Eye, Ear, Nose and Throat at Annual Meeting of Illinois State Medical Society, Springfield, May 15, 1934.

Myopia is said to be due to calcium<sup>9</sup> deficiency; also to a lack of chlorides<sup>10</sup> which causes a swelling and a metabolic disturbance in the lens. Another cause given<sup>11</sup> is the production of acid proteolytic ferments or other reagents that increase the hydration capacity of the hydrophilic colloids of the posterior segment, thus producing a chronic water-logging.

Hypothyroidism<sup>12</sup> has been looked upon with suspicion as a study of 38 cases of progressive, axial myopia gave an average of minus 19.3 and the conclusion drawn that progressive myopia and hypothyroidism were closely related. One-fourth of all cases<sup>13</sup> of myopia are said to show a state of hypotony.

We are of the opinion that convergence plays an important role in the production of axial myopia in eyes with a weaker than normal scleral structure. In Switzerland,<sup>14</sup> in 1924-25, a survey was made of 11,251 persons from 19 to 20 years of age, of whom 672 or 6% were myopic. Comparing the city with the urban residents, the former averaged 8.6% while the latter only 3.3%. Students, teachers, tailors, watchmakers and machinists and those doing finer and closer work showed from three to four times the percentage of myopia than farmers and others doing similar work. This may be due to two conditions: 1. that hygienic surroundings were better among the farmers, which produced in the eye a stronger scleral structure, or 2. that the convergence necessary to perform the work of the city dweller is accountable for the increase of myopia; however, it is quite likely due to both.

Excessive convergence<sup>15</sup> has been thought of as being the most direct cause. Watchmakers who use a magnifying glass over one eye do not show a high percentage of myopia. The opinion<sup>16</sup> has been advanced that this is because they do not use their accommodation, but others express the thought<sup>17</sup> that it is due to the fact that they do not converge. The author's opinion is that the latter is the best explanation.

*Treatment:* Here again we find divers opinions set forth in the literature, almost as varied as those as to cause.

The treatment of myopia may be divided into medicinal, surgical, hygienic, physical, physiological, optical and occupational.

Instillation of epinephrine,<sup>18</sup> also combined with atropine<sup>19</sup> and the use of Vitamin "D"<sup>20</sup> in

the form of viosterol and calcium have been used in the treatment. It has also been observed by the authors and reported in the literature by others that the removal of the crystalline<sup>21-22-23</sup> lens greatly reduces the high degree of myopia.

The use of contact glasses<sup>24</sup> has been described. In one group of 38 patients<sup>25</sup> with high myopia, the vision was improved in most cases by the use of contact glasses, but only two patients wore the glasses as a routine.

The strict observation of general<sup>26</sup> hygienic rules caused a reduction of myopia in Portugal from 21% in 1907 to 12% in 1929.

Myopia may be controlled<sup>27</sup> and its progress arrested or lessened by giving full correction and avoidance of near work up to 6 or 10 years of age. This condition may be greatly benefited by hygiene and outdoor exercise and close attention to general health. Some authors<sup>28</sup> depend much on the elimination of close work as a prophylactic as well as a curative treatment.

Progressive myopia was halted in its progress by disassociation of the two eyes in near vision by the use of monocular cycloplegia.<sup>29</sup> Certain exercises with prisms and the prescribing of prisms base in for constant wear has been described by one author.<sup>30</sup>

This brings us now to the consideration of our own treatment, which was first used by Graves 10 years ago and adopted by Nugent 5 years ago. It is based upon the assumption that all high and progressive cases of myopia are primarily due to a weak scleral structure which, by the effect of certain forces, stretches the sclerotic and results in an elongation of the eyeballs and further, that the most active of these forces is that produced by continued and extreme convergence.

In presenting this subject for your consideration, we are fully aware of the vast amount of research that has taken place in the study of myopia, reference to some of which has already been made. Dr. Graves, working alone, has given a great deal of study to myopia, its cause, prognosis and treatment. In 1929 he presented some of his findings to a group of ophthalmologists at a meeting of the American College of Surgeons in Chicago, and again, in 1933, he presented further findings before the same body. He interested Dr. Nugent in this work, and together we have carried out a number of experiments with gratifying results.



As has already been stated, there are different kinds of myopia, and each case has to be handled with this thought in mind. Just how we can classify these different types, we cannot say now, but we believe further careful observation and study of many cases will, perhaps, teach us to classify and handle them in the proper manner.

One type of myopia, however, we believe can be classified—that is the so-called “school myopia,” which if not controlled will, in our opinion, develop into some other type as we will later describe.

It is our belief that myopia, or a large percentage of it, has its start in childhood and is due to a weakened scleral structure allied with faulty eye habits and uncorrected errors of refraction, causing excessive accommodative efforts which produce excessive convergence. If we can get these young patients early, even if they are wearing minus correction, we feel that we can, in the majority of cases, either remove or lessen the correction worn and arrest its progression. The younger the patient, the greater our success has been.

The eyes of children do not coordinate at birth but must learn to work together just as their two hands or two feet do, but there is no way of telling whether their eyes are coordinating until certain definite eye habits are formed. Eye habits are usually normal, but disturbing influences coming into the life of the child interfere with normal two-eye development, cause bad instead of good ocular habits to form.

Often in later years good eyes are abused by months of strain which throws the delicate coordinating mechanism out of balance, and even after the cause of the strain has been removed by the wearing of proper glasses, the faulty eye habits may linger on and comfortable vision can be obtained only by painstaking elimination of the faulty habits. In the majority of cases we are not through with our patient when we have prescribed a pair of glasses.

In an examination to determine whether the myopia can be reduced, it is necessary to ascertain if there is any manifest myopia which has been corrected. In the majority of cases manifest myopia can be eliminated by the proper muscle training to relieve excessive convergence. To give us an index of the amount of correction which we can eliminate, we first make a near point test,

using the cross cylinder method of Jackson which he described a number of years ago.

We do not think in terms of exophoria but in terms of abduction. If you find a myope showing esophoria you may be sure that the correction worn is too strong. The procedure by which we determine the amount of base in prisms to be prescribed in any given case is as follows:

After obtaining the true near point correction, with the cross cylinder test, as mentioned above, we take the abduction at the far point adding base in prisms divided between the two eyes until we get an image break. Then we reduce the strength of the prisms until the image is one again, and the amount of reduction with base in is added to the correction. If we take the abduction with the correction and find the image break is high, say eight to ten prisms degrees, and with a high degree of recovery point, say four to six prism degrees, the patient's myopia correction may be reduced. The amount of prism worn at this recovery point is incorporated into our first prescription and with this base in prisms in front of the eye we do binocular refraction, building up the amount of minus slowly until we reach the visual acuity we wish. If any astigmatism is present in these cases we usually correct it with plus cylinders and proceed as above. But we have found that it is not necessary to correct astigmatism up to and including .75D, as in the majority of cases these astigmatic errors are corneal and we have found by relaxing the convergent muscle this amount of corneal astigmatism will be eliminated. We also determine, at this point, the degree of relative and accommodative convergence. The amount of reduction in this correction should correspond to that shown in the cross cylinder test. The wearing of this amount of base in prisms will give great comfort to the patient and will, we are sure, stop any tendency of the myopia to progress.

About 1895 a man named Allen used prisms base in for the elimination of pseudo myopia. For many years in many cases we have used base in prisms for the correction of exophoria, but in our later work and study we have found virtue in the use of prisms base in for the purpose of breaking down convergent tensions and for the relaxation of accommodation. We know that in wearing certain optical correction, at least two-thirds of the convergence must lay in the relative field in order to produce eye comfort. When

more than this convergent effort lies in the accommodation convergent field, eyes will not be as comfortable; especially is this true with myopic defects.

According to Jackson in the Journal A. M. A., 1930, the development and increase of myopia depend on the convergence of the eyes for near work. He goes on to state that if we can examine these young children at the beginning of school we could prevent much of the myopia and keep to a low degree that we do find, but he does not prescribe the method by which this can be accomplished.

Where myopia is discovered in children early in their school life, we believe it should be classified as a pseudo myopia, and even though it is necessary to give them minor correction for distance visual acuity, we believe that in many of these cases there should be a plus addition for their near work. We have found that in many of these cases where we add a plus correction for near work, together with base in prism, in a very short time the correction they were wearing for near vision would be the correction that we could prescribe for distance vision.

We have now had a sufficient number of cases treated by the base in prism method under observation for a sufficient length of time to draw the following conclusions:

First, in over fifty per cent. of our myopia cases the correction can be reduced and better acuity given with greater comfort to the patient.

Second, a patient wearing a correction that gives visual acuity of 20/20 or better, can have the same visual acuity with less correction by using base in prisms.

Third, those cases which do not have 20/20 can obtain better acuity with the use of base in prisms, but cannot accept a reduced correction.

Fourth, our records also show that in all forms of progressive myopia, the progression can be stopped by the wearing of base in prisms.

Case 1. Mrs. C., aged 57 years, has worn correction for years. Correction worn when first examined:

O. S. 20/200—175—75x140 20/40  
O. D. 20/ 60— 75—50x180 20/20

Is now wearing:

O D— 25                    2 base in {  
O S—125—50x140 2 base in { 20/20

Case 2. Mrs. E., aged 27 years, had lenses changed and correction increased each time in a period of 15 years. Was wearing:

O D—450                    {  
O S 225—50x180 { 20/20

with base in prisms exercise. We have reduced correction twice. Is now wearing:

O D—275=3 base in }  
O S—125=3 base in } 20/20

Case 3. Miss S., aged 17 years. This case is of particular interest because it was of a progressive type, with a history of a number of lens changes in a two-year period; also she was wearing prisms but for a vertical imbalance. 3 base up in right eye, 3 base down in left. She complained of diplopia for near vision but not of a vertical degree. Her correction when we first saw her (Sept. 9, 1929), was:

O D—8—250x180 3 base up 20/32 vision  
O S—9— 75x180 3 base down 20/65 vision

First R was:

O D—8—250x180 8 base in }  
O S—9                    8 base in } 20/20

December 15, 1929:

O D—650—100x180 8 base in }  
O S—700                    8 base in } 20/20

April 1, 1930:

O D—550—100x180 6 base in }  
O S—600                    6 base in } 20/20

There were two changes after that: September 1 she was wearing, and is now wearing:

O D—550—100x180 4 base in }  
O S—600                    4 base in } 20/20

Very comfortable, no diplopia, no hyperphoria, and vision remains 20/20.

Case 4. Mrs. J., aged 19 years. Her correction at time of examination was:

O D—375—75x140 }  
O S—475—50x 90 } 20/20

From March 1, 1930, to June 23, 1933, we changed her lenses three times. Her R now is:

O D—275 3 base in }  
O S—300 3 base in } 20/20

Has had no discomfort and reports her eyes feel much easier with her work than every before.

Case 5. Mrs. N., aged 23 years, vision without correction 20/40. Was wearing

O D— 75 }  
O S—100 } 20/20

We gave her

O D 2 base in }  
O S 2 base in } 20/20

Vision without glasses after three months of training with base in prism was 20/20. We advised wearing the base in prism for near work only.

Case 6. Mr. L., aged 27 years, December 20, 1932, correction worn:

O D—150 }  
O S—125 } 20/20

Two changes of lenses were made during the year with base in exercise—on December 15, 1933, R was:

O D—50 3 base in }  
O S—50 3 base in } 20/20

Case 7. Aged 27 years, under cycloplegic with retinoscopy:

O D—700 }  
O S—700 } 20/20



Post cycloplegic with the —700 before each eye with cross cylinder test could reduce the correction to —600. Abduction was 10 prisms before image break. Recurrent point 4 prisms. With the amount of base in prism divided between the two eyes without any correction before the eyes was added —sphere .25 degrees at a time until patient could read 20/30 binocular vision. After base in exercises for one month, patient reads 20/20 binocular. R̄

O D—550 2 prism  
O S—550 2 prism

In reporting these cases we have not gone into detail as the method used is explained in the text.

Case 7. Aged 30 years, was wearing:

O D 20/200—150 }  
O S 20/100—150 } 20/20

Final R̄:

O D—50 2 base in }  
O S—50 2 base in } 20/20

Case 8. Aged 19 years.

O D—375—75x150 }  
O S—425—50x 90 } 20/20

Final R̄:

O D—275—25x150 3 base in }  
O S—375 3 base in } Binocular vision 20/20

Case 9.

O D 20/40—75—25x180 }  
O S 20/40—75—25x180 } 20/20

Final R̄:

O D 2 base in }  
O S 2 base in } Binocular vision 20/20

### CONCLUSIONS

We believe that the wearing of base in prisms will greatly add to the comfort of the patient wearing a minus correction;

That the wearing of base in prisms will, in 50% of cases, admit the wearing of a weaker correction, with the same advantage;

That the wearing of base in prisms will stop the tendency of progression in all types of myopia;

That the principle of this method of treating myopics is to relax the convergence.

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### DISCUSSION

Dr. O. B. Nugent, Chicago: There has been much discussion concerning the causes of myopia. Of course there is in the type of rapid progressive myopia certainly some form of pathology in one way or another. There is a very interesting report of a program of examination carried on in Switzerland some years ago, in which those people who did close work in cities, in watch factories, etc., were compared with those who lived on farms in rural districts, and it was found that in the rural districts myopia existed in lower degree than in the cities. Especially it was higher in the watch factories in Switzerland, except one type of watch maker who used monocular magnifying lenses, who had low myopia. This is perhaps due to the fact that in using this type of lens there was a disassociation of the two eyes, and in so doing convergence was relaxed and therefore the myopia was not increased. This goes along with our work, as we have been using base in prisms, with which to relax convergence.

## INDIGENT RELIEF

CLEAVES BENNETT, M. D.

CHAMPAIGN, ILL.

I am very much pleased to be given this opportunity to speak to this organization—but I regret most deeply the circumstances which placed me upon this program. I have no idea that I can speak to you as well, or as entertainingly, as could Dr. Center, whom you were to hear at this time, but I hope that his paper was written, so that it may be preserved. For if it was, it was *good*; no one in the State Society, or in this country, had a surer, keener insight into the problems of our profession than he, nor a better way of expressing them. And he had a far-seeing vision in medical affairs.

I'm going to ask you to give me just a few minutes aside from my announced subject. I don't know just what I can say; it can't be much, but I want to talk just a little about Dr. Center.

Some of you men knew him; some longer, but none better than I have during the last six years. But it makes no difference to me whether you knew him or not, or liked him or not—to me he was a fair-minded, good-intentioned, kindly, "square-shooting" American doctor. The training he had from boyhood up was, judged by the standards of today, scanty, irregular and hard. It took physical as well as mental courage and perseverance to go through his life. It is no wonder he was the good soldier and leader which he was—his own life developed that in him. And through it all he developed as keen an insight into human character as any man I have ever known. He had faults, who hasn't? He had enemies—all positive men have. Rough sometimes? I know it. But his heart was *kind*; he would rather have friends than enemies, and he was absolutely soft hearted in his friendships. And if he thought he had to fight you he fought you fairly and aboveboard; there was no "double-crosser" in him. That's the kind of a man whose friends sincerely love him, and whose foes sincerely respect him.

He liked to have honors, and deeply appreciated them. He told me that the last and highest honor he could think of was given him when he was elected President of the Illinois State

Medical Society. "Because," he said, "this gang knows me. Knows that, for better or worse, I've worked among them for thirty years. If, after that, they'll make me President I can die satisfied and happy." He meant that, and he knew what only a few of us knew also, that he was facing death daily from his own condition for the last four years. I'm glad he was chosen in time to have that feeling of grateful satisfaction which he had.

I've seen more than a thousand people draw their first breath; I've seen a good many draw their last one. I have no fine spun theories concerning these things we call human life and death. I don't understand them any more than I understand a hundred things that we see around us daily. But I like to think, and I shall always think, that our stay in this world is but one transition period in an endless existence. I am—call me an Indian if you will—a believer in the "happy hunting grounds." I like to think of Center now, in a comfortable chair, with a good cigar, with the pain in his knees and the pressure in his chest all gone, watching over, and waiting for, his friends.

## INDIGENT RELIEF

For many years, whenever this subject was brought up in a medical meeting it was done so more or less apologetically. Appendixes and gall-bladders were more interesting and more lucrative, than paupers and boards of supervisors. They ought to be yet, but they are not. The passage of time, the changing world and our own lack of foresight has changed all that for us. Mention the "indigent poor" in any professional gathering today and you "start something" instantly. Why not? There are today millions of people in the United States who depend for medical attention upon the charity of others, individuals or public organizations. No wonder this subject has finally fairly forced itself upon us. It has become a burdensome proposition; it may become better supported, but it will not become less in size. And it is here to stay; the promised "full dinner pail for everyone" will never come—it never has, and it never will. I'm not pessimistic, and I'm not afraid of our ability to do our proper share. But I'm not going to delude myself into thinking we won't have to do it. What I'm interested in is the medical profession being paid a fair monetary remuneration



for what it does. Our profession never did owe the rest of the world a cent—and doesn't now. The debt is the other way.

Each community in Illinois has its own local problems—each physician has his own ideas. It would be an endless task to go over them all; I don't think it would do much good. What I will try to do, briefly, is to indicate what is being done in some places, and possibly from that draw some general conclusions which may help in the solution of affairs in different counties, outside of Chicago. I do not know enough of conditions there to discuss them. And I'll not try to go back over the rocky roads which have been traveled in getting to some of the more or less satisfactory, or unsatisfactory, present-day solutions. And remember that the solution of this year may not be, probably will not be, the proper one for next year.

One county society, after a bitter fight, was given a certain amount of money in cash to take care of the indigent poor. I think it was about \$15,000 for eight months to be spent as the society organization directed. That time is about up now. I don't know how they have gotten along; one of the instigators of the plan told me at the time that they expected it to work out about one-third to one-half of the ordinary minimum fees. I am told it fell through, because the money was not appropriated by the civic authorities.

Another society has had for eight or ten years practically full fees for medical work, about two-thirds for obstetrical and minor surgery. For some years the major, hospital surgery was done by the hospital staff for nothing, but that has been changed so the operator receives a fractional fee, about one-third. The patient could have anyone in good standing in these societies that he and the county authorities agreed upon. One of the larger industrial counties has been operating for two years or a little more on practically the fractional fees of the Emergency Relief organization of today. There again the inevitable major surgery problem came up.

In two other counties five or six groups of five or six men each do the work in services of two months each. Both of these work on the fractional fee basis and have handled the work very well. One has run successfully for years; the other is at present in the midst of a three-cor-

nered fight between the board of supervisors and two factions in the medical society. That will be decided July 1, and the supervisors with their ten cents-on-the-dollar plan will win if the doctors are foolish enough to remain split. It sometimes looks to me as if we would never learn that our one hope of salvation is in sticking together. I don't care how much I dislike a man personally, I see no sense in wrecking myself financially in order to get a job away from him. And yet that is exactly what happens all over this country in medical circles. It would be funny if it wasn't serious.

Out of the stories that I hear and the troubles that are told and the experiences recounted in the last twenty years, certain undeniable facts are beginning to establish themselves.

First, the biggest real problem before the medical profession today is its present and future economic position. Ours is the greatest and most independent profession on earth—and yet how many of you will soberly and honestly advise a young man who has to earn his own living to spend seven or eight years of his life and \$7,000 or \$8,000 of his—or somebody's—money to enter a profession which you and I have allowed to become neglected financially as we have this one? Think that over, you men with boys.

Second, we have got to stick together, because we have proved in numberless instances that we can't get anywhere if we don't. And there are enough of us who will stick, when we have to, to convince the occasional outlaw that he is following a hard and lonely road.

Each local unit should make its own regulations. For the hundredth time I want to say again that there is no reason why governmental organizations should buy their medical services for less per cent. than they buy their coal. Is it any easier or more pleasant to serve patients "on the county" or on the I. E. R. C. than those who pay their own bills?

The trouble invariably comes in the cities and towns, where there are doctors who, for reasons best known to themselves, cut fees. I personally think, though that would be denied, that most of them do it to get in the limelight, to advertise themselves. The doctors in the country districts get their normal fees, or they don't go, which is entirely as it should be. If the men who live in

town, and adjacent to the hospitals, choose to work for nothing, that's bad enough, but they should not interfere with the fees of other men. If I happen to live where I think I can afford to do pauper work for one-half or one-fourth fees, I haven't any right to make rules which will force that upon some one else. In one township in the county where I live one man takes the pauper work for \$500 a year, which is standard fees for what the work had averaged for years. If it runs past a certain amount of work, which it occasionally does a little, he gets 75% of regular fees. That man is a good investment for that township; he takes good care of those who deserve it—and he's absolutely "hard boiled" to those who don't. You can be very sure that the County Society won't make any rules which will bother him at all.

With due respect for local modifications according to circumstances, it seems to me that an understanding that no physician shall work for the county for the indigent poor for *less* than a certain fractional fee, say 50% of the minimum established fee, is a good way to start. Even that arrangement should in some way be overseen by the parent society, for we unfortunately sometimes have backsliders in our own ranks. The man who practices where he has it all to do should make his own arrangements unhampered by the rest of us; and we should help protect him from the "chiseler." In the towns and cities, if the work is spread around among those who are willing to take it, so that it doesn't become a burden to anyone, it seems to me that the average 50% of minimum fees is a generous offer on our part, and that we ought to have it. If we do not get it, it is because of our lack of courage, and foresight, and last but not least, of respect for our own profession. Whether the work is done by an individual, by groups, or by clinics, it is *work*, it is deserving of remuneration, and *we* have to do it or it isn't done. The Rosenwalds and the Filenes can't do it themselves.

#### DISCUSSION

Dr. Harold M. Camp, Monmouth: I have been interested in indigent care for a lone time. The indigent we have had with us from time immemorial, even from biblical days. I agree with Dr. Bennett that we have lost a lot of valuable time; we should have learned years ago to care for the indigent normally as well as in emergency, and I think when the emergency is over and we are back to normalcy we should have our

plans to take care of this problem in the future.

I believe that the most pernicious evils are the individual contracts now in existence, particularly in Illinois. A few months ago I had occasion to write letters to a great many men holding these contracts and we elicited some astounding information. We found that the average man who contracts to give this care accepts a contract paying him from 16 to 18 cents for each office call, from 22 to 26 to 28 cents for residence calls, and for the giving of salvarsan and furnishing the drug, 42 to 48 cents per treatment. This condition is the fault of the physicians. I thoroughly believe that if the physicians of every community would refuse to accept these contracts it would be only a short time before the ones responsible for the financial arrangements would give approximately the normal rate for the service. I see one secretary here this morning who always attends the secretaries' conference. His county has a satisfactory arrangement with the board of supervisors. That county society approved the plan for giving medical relief, but although they approved it they do not expect to operate under it because they already have a satisfactory arrangement with the supervisors. I believe we should work out a very intensive educational program in our society and then go out and talk things over with the board of supervisors. I believe these men are human and reasonably intelligent, sufficiently so to see the doctor's side of the problem.

Dr. Bennett referred to one county that thought they had the matter settled and were to get adequate remuneration, but in this instance it was the membership of the medical profession that caused the overthrow of the plan. The Iowa State Medical Society, as you know, has the well-known Iowa plan. The county society receives a certain amount of money for giving care to indigents for a year. The physicians in one county will receive \$18,000.00 for this year's care. They have established separate offices to take care of these patients and they are satisfied with this plan and they do not care for any plan operating under the emergency relief commission. The Illinois plan has been approved by the advisory committee of the State Society and is operating in forty or fifty counties, and in a number of them it is satisfactory.

I would like to hear Dr. Phifer refer to Cook County. Unfortunately it is impossible under the Illinois law where it is handled by townships rather than counties, to adopt a system that would be like the one in Iowa, which I believe is better than any plan we have at the present time.

Dr. Charles H. Phifer, Chicago: I want to concur in what Dr. Bennett and Dr. Camp have said in reference to a few doctors in each community defeating the cause for the general profession. In Cook County we had fifty-six physicians under civil service caring for the County poor. This group of men during a period of 19 months in 1932 and 1933 received for the care of the indigent and unemployed in our County \$282,212.50. This was done on a basis of \$1.50 per call. As a result of much pressure this number was finally enlarged to a personnel of 88. Many efforts had been made on



the part of members of the Chicago Medical Society during the previous two years to have this work allocated to the members of our Society. Our Medical Advisory Committee has spent many hours in a concentrated effort on this project as it was necessary for our committee to convince the Commission that this work could be done as well by the medical profession as it could by their smaller group.

The Commission finally agreed to refer the medical care of the indigent to the Cook County Physicians and those on the Illinois Emergency Unemployment Relief to the medical profession.

The day the Illinois Program for the Medical Care of the Unemployed was adopted by the Illinois Emergency Relief Commission and the Illinois State Medical Society I received approval to put it into effect in Cook County. We immediately circularized all physicians and by the 14th of February 1800 physicians had signified their desire to render medical aid to those on relief. The Commission began referring calls March 12 and by March 20 the entire load was transferred to the medical profession. For the month of April \$15,801.50 will be paid to the physicians in Cook County.

Our Local Medical Advisory Committee meets twice a month with the representatives of the Commission, at which time all matters pertaining to the service are thoroughly discussed.

I believe that the Commission is making every effort to cooperate with our local organization.

Dr. Cleaves Bennett, Champaign (closing): I have nothing to add, except to endorse what the discussors have said, and to repeat that it is up to us to give this our attention if we are to survive.

## THE EFFICIENCY OF ORTHOPTIC TRAINING IN STRABISMUS

J. L. BRESSLER, M. D., and  
KATHERINE H. CHAPMAN, M. D.

CHICAGO

Within the past few years much enthusiasm has been reawakened in orthoptic training of strabismus. The most recent report on this work, presented by Guibor last June, proved to be a very interesting and valuable analysis of the efficiency of orthoptic training in squint cases at the eye clinic of Northwestern University.

After hearing this report, Dr. Thomas D. Allen became very eager to determine the merits of the treatment outlined, and gave me the opportunity to start and to develop such a squint

clinic on his service at the Illinois Eye and Ear Infirmary.

On September 1, 1933, our clinic was started. Our aim is to study the value of orthoptic training in strabismus. We desired to see if it were possible to eliminate the angle of deviation without operation and to overcome amblyopia and suppression, thus restoring, as nearly as possible, the normal muscle balance without subjecting patients to surgical procedures.

May we take this opportunity to express our gratitude for the whole-hearted cooperation our clinic has received from Dr. Harry S. Gradle, Dr. Thomas D. Allen, the attending ophthalmologists of our institution, and the management of the Illinois Eye and Ear Infirmary.

This presentation today is an initial report of the work and of some of the results obtained at our clinic since its inception. We wish also, to acquaint the profession at large, and particularly the physicians of Illinois, with the type of work being developed at one of our state institutions.

Claude Worth first emphasized the importance of fusion in the treatment of squint in 1903. He states: "The education of the fusion faculty should be undertaken at the earliest possible age. It is of extreme importance and the only key to success."

Conrad Berens in 1929 stated: "Orthoptic training is frequently of great value in some cases and obviates the necessity for surgery. It should be tried in every case primarily, and in those cases ultimately requiring surgery, it should be continued as an adjunct treatment to insure the best results."

Miss Maddox in 1931 reported: "It has hitherto been generally accepted that orthoptic treatment has little or no value after six or seven years of age, but results tend to prove:

"1. That the fusion faculty can be trained in adolescence and early adult life.

"2. That the percentage of cases having no fusion faculty is very small indeed. The fact that results can be obtained, increases the sphere of usefulness of orthoptic treatment."

Guibor, in his work at Northwestern, has developed a technique which is giving good results. The technique and routine which we have adopted at the Illinois Eye and Ear Infirmary and are to describe here follows very closely the principles developed by him.

From the Records of the Orthoptic Clinic of the Illinois  
Eye and Ear Infirmary

Read before Section on Eye, Ear, Nose and Throat at Annual Meeting of Illinois State Medical Society, Springfield, May 15, 1934.

In our study of the treatment of strabismus with orthoptic training we find that our main objective is the development of fusion and stereopsis. The elimination of the deviating angle can only be accomplished when fusion is present. It is therefore essential that we know some of the fundamentals of fusion.

Worth defines binocular single vision as a psychical blending of two sets of visual impressions from corresponding parts of each retina. This, he says, applies to distant objects only. For near vision the images do not usually fall on corresponding parts of the retina but, due to the very elastic fusion faculty, the brain blends these into one image.

The different grades of fusion are recognized as follows:

1. Simultaneous macular perception: Here the patient sees devices in a stereoscope as two separate objects. These may remain separated or have a tendency to overlap, but in either case the desire or ability for binocular vision is absent.

2. True fusion with some amplitude: Here the patient is able to fuse the two retinal images and has some ability to maintain fusion. The latter is evidenced by the patient's ability to keep the two images fused while the separation between the two objects in the stereoscope is increased.

3. Sense of perspective or depth perception: Each eye sees the same object but from different angles. The psychical blending of these dissimilar sets of visual impressions enables one to appreciate the solidity of objects and assists in the judgment of relative distances.

In our study today we are not going into the theories, causes, or classification of squint. However, I am going to mention a few important conditions usually found associated with it. Two essential conditions always present are a deviation of the visual axes and a defect of the fusion faculty. The following conditions may also be found: first, the image of the non-fixing eye is almost invariably suppressed; second, in rare cases there is a congenital amblyopia; third, there is often an acquired amblyopia in the deviating eye; and fourth, usually a refractive error is present. When fusion is absent we must have either diplopia or suppression.

The eye used for vision is called the fixing

eye; the other is the squinting or deviating eye. Eighty-five per cent. of all squints are unilateral or monocular; fifteen per cent. are alternating.

Most cases of strabismus occur between the ages of one and five years, the greatest number of these being between two and three years of age. After puberty the angle has a tendency to become less. When adult life is reached, the angle of deviation may have disappeared, but by that time, if the case has remained untreated, there may also be a marked loss of vision.

Treatment of strabismus cases should always be started early. The sooner this is done after the appearance of the deviation the better the results will be. A squint should not be allowed to be outgrown as so many lay people and even many physicians believe is possible. If treatment is begun early, that is, before six years of age—and by treatment I mean not only orthoptic training but also refraction and surgery—the possibilities for a complete recovery in respect to the angle of deviation, fusion ability, and vision are greater than if it is started at a later stage.

In the short time our clinic has been functioning some surprisingly good results have been accomplished. We are greatly encouraged to hope that in the future the necessity for surgery in squints will be greatly reduced, and that when surgery is necessary, or has been done, the final results with orthoptic training will be far superior to surgery alone.

The work in our orthoptic clinic has developed into the very definite routine outlined below:

1. *History*: A careful and accurate history is very important. From it we may learn whether to expect a congenital or an acquired strabismus. Certain diseases or injuries may lead us to suspect the presence of a paralytic and not a functional deviation. Certain definite information is to be elicited in the following manner:

A. Age of onset.

B. Mode of onset. (Occasional or constant from the start.)

C. Previous injury or illness.

D. Evidence of heredity.

E. Diplopia.

F. Previous treatment, including surgery.



2. *Examination:* The examination is divided into the following steps of procedure:

A. Objective:

1. *Motility.* This should be taken for each eye separately in a dark room. One eye is covered and the patient is told to look up and down, and from side to side, with the uncovered eye. If each eye can be separately averted until the edge of the cornea touches the outer canthus, outward rotation may be considered full. The power of adversion varies considerably within normal limits. Most people can rotate their eyes inwards until the corneal edge is within one-tenth of an inch of the caruncle.

2. *Power of Central Fixation.* This is observed at the same time that the motility is tested. The fixing eye must be covered. If the deviating eye fixes the light without hesitation and is capable of holding fixation, we record it as good fixation. If the eye fixes momentarily but cannot hold it for any length of time, we call it fair fixation. If the eye wanders around looking for the light and is unable to fix at all, we call it poor or no fixation. At times the eye will fix or attempt to fix in an eccentric position. We always record any signs of false fixation.

3. *Character of Squint.* This should be carefully determined as the treatment depends always upon a correct diagnosis. A squint may be convergent or divergent, monocular or alternating, functional or paralytic.

4. *Angle of Deviation.* At the first visit the angle is always taken before anything else is done. It is taken with and without glasses for distance, with the fixation-light at the distance of twenty feet; it is also taken with and without glasses for near, with the light at the distance of thirteen inches.

The angle of Gamma or Kappa, although slightly different, for clinical purposes, is considered the same. This angle is formed by the intersection of the visual line and the pupillary axis, or the line which passes through the center of the pupil. This angle can be accurately measured on the perimeter. It is very important, as it may give the patient the appearance of having a convergent strabismus if the angle is negative, or a divergent strabismus if it is positive.

In measuring this angle the patient is seated at the perimeter with the eye under examination

centered on the near-fixation point, the other being occluded. The exposed light of the ophthalmoscope, with the examiner's eye looking exactly over it, is carried along the arc of the perimeter until the reflection of the light appears in the center of the pupil. The position of the light on the arc indicates the angle of Gamma. When the reflex is on the outer side of the optical center, the angle is positive; when it is on the inner side, it is negative. A positive angle of Gamma is added to convergent squints and deducted from divergent squints; a negative angle is deducted from convergent squints and added to divergent squints. Positive angles are usually present in hyperopes; negative angles often appear in myopes.

In taking the motility, fixation, and angle of squint we usually employ the exposed light of the ophthalmoscope. In determining the character of the strabismus present we use the simple cover test.

B. Subjective:

1. *Diplopia and Maddox Test.* It is usually very difficult to produce diplopia in a squint, but with patience it is often possible. The character can then be determined, and often the deviation measured with prisms.

2. *Vision.* This should always be taken at the first visit with and without glasses and frequently on subsequent visits, especially if amblyopia is present.

A new patient who has never worn glasses is immediately given an atropine refraction and fitted, if necessary, with the proper glasses. When glasses have been prescribed, the patient is watched and frequently checked for a period of six months before fusion training is attempted. A patient who has worn glasses for six months or longer and whose vision is satisfactory is started with fusion training immediately. If the vision is not satisfactory, another refraction is ordered and fusion treatment begun with the new glasses.

3. *Fusion Test.* The fusion faculty is tested with the amblyoscope or stereoscope, using in the latter either Wells's or Sattler's cards. The amblyoscope, in our hands at least, has not proven very satisfactory. With it one cannot watch the patient's eyes or check what he sees by having him point to the figures on the cards, as is possible with the stereoscope. With the latter, the patient's eyes can be watched through

the lenses, or through an opening made in the top of the hood.

3. *Treatment of Strabismus.* A. Non-active:

1. Refraction with cycloplegia. Refraction is always done as the first step in our treatment. Orthoptic training, treatment for amblyopia, or surgery is never attempted before proper glasses have been prescribed.

2. Prisms. Prisms may be used in the lens by decentering but we do not often resort to this. Slip-overs can be worn over the patient's glasses if desired.

B. Active:

1. Orthoptic training, occlusion, and atropine.

2. Surgery. In our clinic no strabismus patient is operated upon until all possibilities of improvement with orthoptic treatment have been tried and found to be of no avail. We consider a period of three months as sufficient time to determine the impossibility of correction with orthoptics. After surgery the patient returns for further orthoptic treatment, and frequently fusion is developed and the muscle balance restored.

*Routine of Orthoptic Training:* As before stated, a certain definite routine is always followed with each patient. When the proper glasses, if glasses are necessary, have been worn for six months or longer, we determine first of all whether or not fusion is present and, if so, what the degree of fusion may be. The stereoscope and Wells's "A" cards are used for this purpose. With these cards we are able to determine if binocular vision, single binocular vision, or suppression is present.

If the patient succeeds in seeing the two objects on the card at the same time and is not alternating, he has binocular vision. However, we must make certain that he is not alternating by having him point while we watch his eyes. If he immediately superimposes one object over the other without alternating and is able to hold them together, he has single binocular vision. If he sees one object only, or first one and then the other by alternating, he has suppression.

If the patient sees only one object, or has binocular vision, we use prisms base out for a convergent squint and base in for a divergent squint, until he can superimpose one object over the other. If any remnant of the fusion faculty remains he learns to fuse these two ob-

jects quickly, and is frequently able to do so without prisms in three or four treatments.

When the patient has simple fusion our next step is to train him with Wells's "E" cards for the development of depth perception or perspective, and with "F" and "G" cards for the development of finer fusion. For the development of amplitude and duction we use the "H" and "I" cards, starting without prisms and later adding prisms base in for a convergent squint and base out for a divergent squint. The Sattler cards are also used for this purpose. Since they have the added advantage of being split, they can be reversed and separated.

The angle may be measured with any perimeter or Priestly-Smith tape. At our clinic we are using a special perimeter suggested to us by Dr. Leo L. Mayer and built for us by the American Optical Company. This perimeter has the advantage of having a fixed arc on a sliding stand, with the arc graduated in single degrees instead of ten as is the average one. This makes a more accurate measurement of the deviating angle possible.

Ductions are measured after the angle of deviation has been eliminated. This can be done with a rotary prism, prism bar, or the loose prisms found in the trial case.

Stereopsis also is measured after the angle of deviation has been eliminated. For this test we use an instrument built for us by Belgard-Spero Company. It is a modification of one originally introduced by Martin Cohen. The test is performed in a dark room with the patient placed at a distance of twenty feet from the instrument. One light in the instrument is stationary; the other is adjustable backwards and forwards. Between changes in the position of the adjustable light, the patient's eyes must be closed. The adjustable bar is graduated in one-half centimeters. The normal stereopsis varies from one and one-half to three centimeters.

Each patient receives a weekly treatment of from one to two hours. At each treatment the following notes are made: first, the absence or presence of suppression, in the latter case, the suppressing eye being recorded; second, the measurement of the angle with and without glasses for distance and near; third, the state of fusion, a record being made of those cards which the patient is able to see and those which he cannot; fourth, the vision of an amblyopic



patient. As long as improvement is made, treatment is continued. After fusion has been well established and the angle of deviation eliminated, or almost eliminated, they receive a set of Sattler cards and a stereoscope for the training of deviations and amplitude at home. If after a period of three months no improvement has taken place or the case is at a standstill we resort to surgery.

In our report today, we are not going into the study and treatment of amblyopia. However, the latter must be undertaken by everyone attempting the correction of strabismus. To ignore it invites failure, not only when surgery or orthoptics are attempted, but also when a refraction only is done. Amblyopia is associated with many of our strabismus cases, all monoculars having a varying degree of it. At our clinic we treat the amblyopia, if it is of a high degree, before starting orthoptic training; if the amblyopia is of a

moderate degree, training is started at the same time.

The amount of amblyopia with which we can expect to develop fusion is a much discussed point. Worth states that patients having a vision of less than 20/100 in the amblyopic eye cannot be made to fuse. Other authors vary in their opinions. Some claim 20/200; others, 20/80. At our clinic we have frequently developed fusion in patients with vision in the amblyopic eye ranging from 20/200 to 6/200. We have some of the many instruments and devices which have been constructed to stimulate vision in these blind eyes, but we are not yet ready to report on their merits.

Our method of treating amblyopia in connection with the treatment of strabismus is, first of all, to prescribe the proper glasses after an atropine refraction; then an attempt is made to im-

TABLE 1. RESULTS IN PATIENTS TREATED

Patient	Age	Age of onset	Type of defect	Angle S. gl.	Angle C. gl.	Corrected R. Vision	Corrected L. Vision	Visit binocular vision developed	Fusion	Stereopsis†	Suppression	Visit Overcome	Length of Treatment	Final angle s gl.	Final angle c gl.	Remarks
1	13	..	RD	5	L0	20/40	20/25	3	3	4	RE		5mo	0	6	Good amplitude
2	18	2	LC	20	20	20/20	20/40	2	4	4	LE	11	4mo	15	9	Poor amplitude
3	12	*B	LC	25	15	20/25	20/65	1	1	3	LE		6mo	0	0	
4	10	5	LC	25	15	20/25	20/50	2	9	11	LE	12	6mo	6	9	Good amplitude
6	10	3	RC	5	10	20/65	20/20	1	1	2	RE	4	6mo	0	0	Good amplitude
7	9	4	RC	15	..	20/100	20/20	2	2	3	RE		7mo	15		
8	8	3	AC	13	3	20/25	20/25	1	1	2	RE		6mo	0		Fair amplitude
11	6	..	RC	30	25	20/200	20/50	..	0	0	RE		6mo	26	22	
12	7	2	LC	10	10	20/40	5/200	0	0	0	LE		6mo	15	0	Disorganization stage
13	10	3	AC	15	5	20/55	20/25	1	4	5	A	5	4mo	20	10	
14	9	*B	RD	10	25	20/50	20/25	2	3	3	RE		2mo	11	13	Irregular attention
16	9	4	RC	25	..	20/200	20/25	2	3	3	RE		2mo	15		Discontinued R
17	12	..	AD	10	5	20/20	20/100	1	1	1	O		6mo	0	0	Some amplitude
18	8	3	RC	40	20	20/50	20/30	1	6	8	RE		6mo	30	15	
19	8	4	AC	30	25	20/15	20/15	2	8	10	A	21	7mo	22	15	Reversed depth
20	10	..	AC	25	15	20/15	20/20	1	3	4	RE	11	6mo	9	5	Good amplitude
22	10	*B	AD	40	..	20/20	20/20	1	1	2	RA		6mo	22		
23	10	2	AD	30	20	20/20	20/20	1	1	2	RE	3	5mo	22	13	Good amplitude
24	8	2	LC	15	15	20/20	20/100	2	3	3	LE		6mo	14	6	
25	7	4	RC	15	10	20/200	20/50	1	1	1	RE	15	5mo	7	4	
27	15	..	LC	30	25	20/15	20/200	1	1	4	LE	7	5mo	22	15	
30	4	2	AC	19	14	20/25	20/30	1	1	3	LE	4	6wk	0	0	
31	19	4	AC	25	10	20/25	20/100	1	2	3	LE	10	3mo	0	0	Good amplitude
33	6	3	LC	15	5	20/30	5/200	1	2	5	LE		4mo	10	0	
37	6	*B	AD	5	20	20/65	20/100	4	6	0	LE		3mo	21	18	Worse
43	10	3	LC	15	10	20/20	20/65	1	1	1	LE	9	3mo	0	0	Good amplitude
45	8	5	LC	16	10	20/25	20/65	1	1	2	LE	4	3mo	14	0	
48	7	1	RC	28	22	20/200	20/30	1	3	6	RE		3mo	19	16	
50	8	4	LC	12	11	20/30	10/200	1	1	3	LE	3	2mo	0	0	
51	7	4	AC	38	30	20/20	20/25	2	0	0	A		2mo	37	22	
52	15	8	AC	25	..	20/25	20/25	1	0	0	A		2mo	27		
53	11	4	LC	12	9	20/15	20/200	1	2	4	LE	4	7wk	2	3	
54	8	5	AC	23	18	20/20	20/20	1	0	0	A		5wk	26	22	
55	8	5	AC	41	23	20/25	20/25	1	0	0	A		5wk	24	13	

\*B=present at birth.

†Number of treatments to accomplish.

prove the vision in young children with the instillation of atropine in the fixing eye, and in older children and adults, with complete occlusion of the fixing eye from six to eight hours daily. In mild cases soaping the lens of the fixing eye may be of great benefit.

Today we are basing our statistics upon thirty-four cases only. We have, of course, treated many more than this, but some have attended very irregularly, others have been under observation for too short a period, and some are post-operative. This last group is too small and the treatment has been too short to enable us to form any statistical data concerning it.

The average length of treatment in these cases, before the elimination of the angle of deviation, was from three to six months. The shortest period was six weeks, the patient being in that case three and one-half years of age. The oldest patient, nineteen years of age, took four months. This patient was a monocular with an amblyopia of 20/100 in the deviating eye. The angle is now eliminated, with and without glasses, and the vision has been improved to 20/25.

Of the thirty-four cases reported, 10 cases or 29% are straight with and without glasses; 11 cases or 32% are improved, all degrees of fusion having been developed and the angle of deviation reduced ten degrees or more but not yet eliminated. 13 cases or 38% have not improved in respect to the angle, although many are beginning to develop varying degrees of fusion.

TABLE 2. PERCENTAGE RESULTS IN PATIENTS TREATED

Angle	Eliminated	Improved	Not Improved
	10	11	13
	or	or	or
	29%	32%	38%
With and without glasses	Angle of deviation reduced 10 degrees or more	Not much improvement in angle, but fusion developed in many	

CONCLUSIONS

1. The necessity for surgery in squint patients will be greatly reduced if orthoptic treatment is carefully carried out.
2. When surgery becomes necessary or has been done the final results with orthoptic training will be much better than with surgery alone.
3. Treatment of amblyopia before surgery will assure better results.

In conclusion we would like to voice a plea to

educate the public and the general practitioner to the fact that all strabismus patients should receive treatment as soon after the appearance of the deviation as possible.

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DISCUSSION

Dr. Thomas D. Allen (Chicago): This paper by Doctor Bressler and Doctor Chapman is a very interesting one. Although based on rather short clinical study, it nevertheless points the way to better handling of these cases of squint. It also confirms the work done by other squint clinics in this country and abroad.

It changes the emphasis in the handling of all squint cases from a cosmetic cure to a functional cure. As the result of their work, these authors have been able to improve the sight, where vision has been diminished through lack of use, and cause a coordination of the eyes in the production of depth perception.

In our office, we are having the same results as Doctor Bressler describes. We feel that when we establish a mental picture that is slightly different from the picture seen by each eye alone, that the very formation of the mental picture will assist in holding the eyes in their proper place, and also add to their function that very desirable ability to estimate depth.

We feel that this work will also stimulate the profession to the point where we will not be satisfied with the results previously obtained, but will strive ever harder to improve our work.

Let me again congratulate the essayists.

DISCUSSION

Dr. J. L. Bressler (closing): I would like to thank Dr. Allen for his kind words. We have not gone very deeply into detailed statistics as yet, but I think from one and one-fourth to three or three and a half diopters would be the answer to your question. The work at the clinic takes considerable time and routine, but if we can manage it next year we intend to go into the details of amblyopia and hyperopia when we compile our statistics.



## THE ALLERGIC MANAGEMENT OF VASOMOTOR RHINITIS

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In considering the management of vasomotor or hyperesthetic rhinitis, it is important first to differentiate the condition from other diseases with which it is often confused. Of these the recurring cold and sinus disease are most important. Occasionally mechanical factors and in rare instances, cerebrospinal rhinorrhea may simulate the condition. The presence of allergic manifestations such as hay fever, asthma, urticaria, eczema, and certain types of headache and colitis in the patient or his family, the history of symptoms of sneezing, nasal discharge and congestion, itching of the nose, roof of the mouth and ears, loss of smell and lacrymation and, less frequently headaches, together with examination by an otolaryngologist supported by laboratory procedures will usually make the diagnosis. Further allergic management is then directed toward determining the specific factors causing these symptoms. This is done by analysis of the occurrence of symptoms, skin, nasal tests and dietary manipulation.

The exciting or specific allergens may be included in one or more of several groups, namely, the ingestants, inhalants, physical and bacterial factors. Each of these or a combination of the various groups is capable of producing symptoms in a sequence which carefully analyzed will serve to classify the particular case in question. Food sensitive individuals may have symptoms immediately after smelling a given food, but more frequently they follow within a few minutes to several hours after ingestion. In some individuals there is a certain threshold for a given sensitivity. Wheat, for instance, may be tolerated every other day, but if taken every day results in symptoms. An individual may eat beans once daily with impunity, but if taken twice on the same day symptoms develop. In instances of multiple food sensitivity constant symptoms may be produced even though the same food is not eaten every day. Chocolate, for instance, may cause symptoms on a given date to be followed by symptoms on the following day

due to beans. There may be any combination of symptom production, and it is only upon careful analysis, proper elimination, and continued observation that the food factors can be determined.

Next to foods, inhalants rank most important in symptom production and in cases they combine with ingestants to confuse and complicate the clinical picture. Of the various inhalants house dust, which is a combination of several allergens, is very important. House dust individuals are usually worse at home, particularly on cleaning days, and on damp days, worse during the winter, and find relief in the open air. Another important inhalant is orris root the basic ingredient of most perfumed cosmetics. It is of particular significance in women, but is important in men as well. Patients sensitive to orris root are usually worse in crowds, i.e., in churches, theatres, stores and other places where people congregate. Other inhalants of importance, but not so frequently a cause of symptoms are feathers, wool, boxwood, various odors and smoke.

Heat and cold sensitivity has not played as important a role in these cases as others report. It is true that many cases of vasomotor rhinitis were markedly influenced by change of temperature, but this was shown to be a secondary manifestation of a primary sensitization. The allergic mucus membrane becomes congested and swollen, and therefore more susceptible to temperature changes which then produce symptoms. The influences of temperature changes disappear so often after the removal of the primary allergen that the diagnosis of heat and cold sensitivity should be made only when no other allergen can be demonstrated.

Except for the clinical history, skin testing is perhaps the most important aid in determining a particular allergen. Yet, if one were to rely on skin tests alone the diagnosis could not be made in about 50 per cent of the cases due to foods and 20 per cent of those due to inhalants. The impression that skin tests will make the diagnosis, that positive tests are proof of clinical sensitization or that negative tests eliminate clinical sensitization is erroneous. Frequently patients are tested and when the tests prove to be negative the case is regarded as being non-allergic. An individual may be sensitive to sev-

\*Read before Section on Eye, Ear, Nose & Throat at annual meeting of Illinois State Medical Society, at Springfield, May, 1934.

eral allergens and yet fail to react to testing extracts. On the other hand, there often are a number of positive tests that may have no clinical significance. A positive test may offer a valuable clue, but it is only after clinical demonstration that a given allergen is to be considered etiologic in producing symptoms.

Scratch tests should be done first followed by intradermal tests as needed in each case. At all times the possibility of reactions from testing should be borne in mind. General or local reactions may follow the application of excessive numbers of allergens by either method of testing. In selected cases the local application of the suspected allergen, either directly onto the middle turbinate by means of an applicator or by spray, may be of diagnostic aid. This procedure is very limited as only one allergen may be applied at a time.

The examination of the nasal secretions aids in establishing the allergic nature of vasomotor rhinitis. The secretions are usually clear, watery or mucus in character, and upon microscopic examination eosinophiles are often increased. However, the absence of eosinophiles does not rule out allergy, nor does the presence of eosinophiles necessarily indicate allergy. Lindsay and Walsh<sup>1</sup> in a series of cases report 14.9% as having a high eosinophilia without allergic manifestations. Repeated smears, preferably taken from the mucus part of the secretion, may be necessary to demonstrate eosinophilia.

After an analysis of the history and the various tests as described, the treatment is then directed toward the establishment of an etiologic diagnosis. This is done by exclusion of the suspected foods, contactants or inhalants and subsequent manipulation of these factors until the patient is symptom free. If there are multiple positive allergens operating, or when skin tests are of no value, the diagnosis will be more difficult, but can usually be made by clinical study of the relationship of the patient's symptoms to the dietary and general habits. When the offending allergens have been determined it is usually easy to eliminate them and effect relief of the rhinitis.

There are, however, a group of allergens which, due to their universal presence or because of the impossibility to effect complete elimination, may produce symptoms indefinitely in a

sensitive individual with low tolerance. In these instances hypodermic injections of the allergens involved, supplemented by elimination, will increase tolerance to the allergen in question and effect relief of symptoms. This form of therapy is particularly applicable to house dust, orris root and pyrethrum sensitive individuals. In some instances autogenous house extracts prepared from the patient's own house or from a certain piece of furniture may be more effective. Tolerance to foods may be increased by a period of complete elimination followed by oral desensitization.

Frequently a patient who has been symptom free over a period of weeks or months will suddenly develop an acute exacerbation of nasal symptoms. This may be due to a violation of the dietary regime or exposure to a sensitization not previously encountered, such as pollens occurring from spring to fall, but not during the winter.

#### REPORT OF CASES

Following are typical histories:

Case 1—Mrs. Elizabeth K., aged 29 years, housewife, complained of sneezing of four years duration, worse upon arising and continuing throughout the day, often paroxysmal and usually numbering from 75 to 100 sneezes a day. Accompanying this was itching of the nose so severe as to prevent sleep. A watery nasal discharge was constantly present requiring from 15 to 20 men's handkerchiefs daily. Nasal congestion alternating from side to side but bilateral at times accompanied the rhinorrhea. Smell and taste were present only at infrequent intervals. A septum operation and the extraction of several teeth resulted in no improvement. There was no history of allergy in the family. Scratch tests revealed reactions to veal, poppyseed, nutmeg and black walnut. Intradermal tests gave reactions to salmon, eggplant, grape, raspberry, pork, peach, pear, rhubarb, lime, elm orris root, house dust, grape fruit, duck feathers and pyrethrum.

It has been found that pork will produce itching of the nose in from 3-8 hours, and of such a severe degree as to prevent sleep. The ingestion of orange juice results in a rhinorrhea within ten minutes. Raspberries cause nasal congestion and sneezing within 15-20 minutes. Meanwhile the patient has received hypodermic injections of house dust and orris root extracts. This has increased her tolerance to these allergens so that she is now able to do house cleaning without symptoms, whereas previously, violent sneezing and nasal congestion developed within a few minutes after exposure. Within a few weeks after the patient became symptom free, she observed that the extremes of heat and cold, which formerly resulted in sneezing and



congestion, no longer produced this effect. The patient is now entirely well except when she is exposed to one of the specific allergens.

Case 2—Harry M., aged 53 years, a married minister. He complained of having a constant "cold" of several years duration, sneezing 40-50 times a day, watery nasal discharge requiring 12-15 handkerchiefs daily, nasal congestion, and loss of taste and smell. The removal of his tonsils and adenoids afforded no relief. His family tree exhibited various allergens.

Following are the findings in the nose as given by Dr. Whittel:

"The nose was completely blocked by swelling, pale and moist turbinates. No free pus was seen, but a thin watery secretion was present in abundance. Post nasal examination was similar to anterior rhinoscopy and showed no polyps. The septum was slightly deviated to the right."

House dust to which the patient gave a four plus reaction was eliminated together with corn, rice, eggs, peas and cherries. Within two weeks the patient reported 80% improvement and at this time the rhinologist reported as follows: "The turbinates are more nearly normal in size and color, secretion has greatly diminished and the patient is breathing freely through both sides. The septum is definitely deviated to the right. Pharynx in both examinations has been normal."

This patient's symptoms disappeared entirely and could be reproduced only upon exposure to the dust in his study. The foods to which he gave positive skin tests resulted in no symptoms when ingested. The influence of changes of temperature disappeared entirely with removal of the etiologic allergens.

Case 3—Dorothy G., aged 8 years, school girl. She complained of sneezing, coughing and nasal congestion of two years duration. On the basis of skin tests, corn, beans, fish and nuts were removed from the diet. Subsequent observations revealed that the ingestion of corn syrup and mayonnaise containing corn oil caused sneezing. Oranges and nuts resulted in congestion and running of the nose. These foods when eliminated effected complete relief of symptoms.

Case 4—Caroline P., aged 28 years, single. She had fall hay fever for nine years and two years ago developed paroxysms of sneezing, nasal congestion and running of the nose. These symptoms have persisted since and are worse from August until frost. There is no history of other allergy in the family. Positive reactions were obtained to the ragweeds, wheat, buckwheat, corn, oats, pumpkin, cucumber and nuts. Nasal symptoms cleared up completely within five days after exclusion of these foods, but could readily be reproduced by ingestion of wheat within three hours and by nuts within 15 minutes. A single ingestion of nuts or wheat caused symptoms with gradual diminution for five days. Corn and oats produced nasal symptoms within

three hours after ingestion and persisted for 24-36 hours. Buckwheat and cucumbers to which she also reacted, caused no symptoms. Treatment with ragweed pollens is being given for the fall pollinosis.

There are certain cases which defy all allergic management, and others in which the improvement is not sufficient to afford comfort. These groups will respond to non-specific therapy in some instances, and of the various measures, it has been found that calcium alone or calcium with thyroid as advised by Novak and Hollender<sup>2</sup> to be more consistently effective than any other form of therapy. Occasionally antuitrin S, vaccines, and foreign protein preparations produce temporary relief. Local treatment, such as alcohol injections into the sphenopalatine ganglion as advised by Sluder,<sup>3</sup> coagulation of the turbinates,<sup>4</sup> cauterization by means of silver nitrate,<sup>5</sup> radium applications,<sup>6</sup> and other procedures are indicated in selected cases, but should be used only in collaboration with a competent otolaryngologist.

In a recent review of 132 cases of asthma as related to nasal pathology, Vaughan<sup>7</sup> reports 40 as having had previous nasal treatment, and of these 35% gave good results with allergic management. Of 54 cases with no treatment of existing nasal pathology, 59.3% gave good results treated allergically. In 38 cases showing no nasal pathology 68.4% gave good results with allergic treatment. These figures emphasize the need of conservatism in resorting to radical surgical procedures, but in selected cases the removal of polyps or the correction of obstruction

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#### ALLERGENS IN VASOMOTOR RHINITIS ORDER OF CLINICAL IMPORTANCE IN A SERIES OF 44 CASES

Wheat  
House Dust  
Orris Root  
Beans  
Chocolate  
Orange  
Potatoes  
Tomatoes  
Eggs  
Bananas  
Pork  
Rye  
Milk  
Nuts  
Fish  
Spinach  
Corn  
Rice  
Beef  
Cantaloupe  
Feathers  
Barley

ROLE OF SKIN TESTS IN ALLERGIC VASOMOTOR RHINITIS IN A SERIES OF 44 CASES

Allergen	Skin test positive Clinically positive	Skin test negative Clinically positive
Wheat .....	5	8
House Dust .....	8	4
Orris Root .....	9	0
Beans .....	4	1
Chocolate .....	3	4
Orange .....	2	5
Potatoes .....	3	2
Tomatoes .....	0	4
Eggs .....	0	3
Bananas .....	0	3
Pork .....	3	0
Rye .....	3	0
Milk .....	0	2
Nuts .....	2	0
Fish .....	2	0
Spinach .....	2	0
Corn .....	2	0
Rice .....	2	0
Beef .....	2	0
Cantaloupe .....	0	2
Feathers .....	0	2
Barley .....	2	0

should be done. It is of paramount importance at all times to bear in mind that vasomotor rhinitis is a constitutional disease the correction of which requires close collaboration between the allergist and otolaryngologist to obtain the best results.

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DISCUSSION

DR. L. UNGER, Chicago: I am very much interested in Dr. Zeller's paper and in Dr. Novak's discussion, but I think Dr. Novak is wrong, in a way, in calling allergy a specialty. It is really a branch of internal medicine and to be a good allergist one must be a good internist. I do not believe that specialists in nose and throat work or in dermatology can become good allergists unless they are also proficient in the chest work so vital to the diagnostician.

Dr. Zeller did not have time to mention the fact that bronchial asthma is a common complication of vasomotor or hyperesthetic rhinitis. Regarding nasal operations in allergic nostrils or allergic asthma, I believe all allergists are agreed on the following points: Severe trouble, such as a well established sinusitis, marked nasal obstruction and large polyps should be operated on but it must be

understood that these conditions will probably recur unless the allergic end of the problem is given proper attention. Polyps are the result, not the cause of allergy in most cases; they merely represent a localized edema similar to the edema of hives and the edema which causes most of the obstruction of the asthmatic.

Patients and doctors should be better informed as to where the patient meets those substances (antigens) which bring on allergic conditions. For example, a horse hair mattress may cause symptoms in the susceptible individual even though there is no contact with horses. Removal of such mattresses has cleared up many such patients.

Dr. Zeller is correct when he states that skin testing is *not* a function of a laboratory. These tests require the experience of a trained physician, one who can appreciate differences in the skins of his patients and one who can correctly correlate positive tests with clinical findings. Three to four hundred skin tests by a laboratory technician are of very little value and they are frequently quite misleading. Clinical trial is very important. If a patient gives a positive test for egg, remove eggs and egg-containing foods from the diet and see if the symptoms clear up. If they do, return eggs to the diet and see if symptoms return.

When many positive tests are obtained, e. g., twenty or thirty, it is sometimes quite difficult to say which are important. Passive transfer (Prausnitz-Küstner) may help here: Take about 10cc of blood from the patient, centrifuge the blood and inject about .10cc in each of twenty or thirty different sites on an arm or leg. After two or three days inject each of these with a different extract of an antigen, e. g., horse dander. The other arm is also injected with the same antigens and is the control arm. A negative Wassermann is, of course, essential.

The two main principles of correct treatment of all allergic conditions should be emphasized: 1. Complete removal of all offending substances and 2. Desensitization to those substances which are important and which cannot be entirely avoided, e. g., ragweed pollen, horse dander, house dust, eggs, wheat and milk.

The following is the revision of the closing discussion by Dr. Zeller.

DR. MICHAEL ZELLER, Chicago (closing):

In the past year there has been considerable literature emphasizing the significance of heat and cold sensitivity. This has not been as important a role as reported by some. In many instances a careful analysis of the patient's symptoms will lead to the discovery of other allergens, which when removed, is followed shortly by normal tolerance to heat and cold. There are some cases in whom the exciting allergens cannot be determined and must be classified as heat and cold sensitivity but this number is being reduced considerably with thorough allergic study.



## THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

JOHN E. McCORVIE, M. D., and  
M. POLLAK, M. D.

PEORIA, ILL.

That the results in the treatment of pulmonary tuberculosis depend on early diagnosis is so generally known that one rather hesitates to repeat it before a medical audience. Yet the fact remains that the majority of patients admitted to tuberculosis sanatoria throughout the country are in the far advanced stage of the disease at the time of their entry.

Miss Whitney,<sup>1</sup> statistician of the National Tuberculosis Association, states that in 1931: "The stage of the disease of the patients with frank pulmonary tuberculosis, as reported by 274 institutions, shows that 16% were admitted in the minimal stage, 30% in the moderately advanced, and 54% in the far advanced stage. Compared with the earlier figures of Drolet, these data are not encouraging. The same low percentage of minimal cases, 16%, were admitted in both years, but in 1931 the percentage of far advanced cases is even higher, being 54%, as compared with 50% in 1926."

We have admitted to our institution during the past four years 324 cases with pulmonary tuberculosis of the adult type. Of this number, 123, i. e., 37.96%, were in the minimal, 56 or 17.20%, in the moderately advanced, and 145, or 44.75%, were in the far advanced group. These figures compare favorably with those cited above, and show that our cases are diagnosed earlier than in the general average throughout the country. It should be emphasized here that we do not select our cases for admission and that they are admitted irrespective of the stage of their disease.

The large percentage of admissions in the far advanced group is responsible for the fact that according to Miss Whitney,<sup>1</sup> "For 264 institutions reporting, they had cared for 154,437 patients at their death. The total estimated number of deaths on this basis in tuberculosis institutions would be 246,600, or eliminating readmissions, 19% of patients admitted, are discharged by death."

Under these conditions, it is of great importance to investigate and try to find the reasons why this large percentage of patients come to institutions only in the late stage of the disease, when in a great number of instances medical care is of very little avail.

For the purpose of such investigation we have collected pertinent data in one hundred (100) cases. These cases comprise the patients who during the time of this study have been under the care of our institution and our out-patient pneumo-thorax department, which is conducted for the care of patients discharged from the Sanatorium.

It is obvious that under these conditions the selection was not done entirely at random, and that the percentage of far advanced cases is considerably larger than had these patients been selected consecutively on admission.

According to Table 2, 53% of this group was classified as far advanced, while the average percentage of far advanced cases among our admissions during the past four years was only 44.75%.

Table 1 gives the age groups and sex of these patients, showing that the largest group, 49%, is comprised of young adults between 21 and 30 years of age, and that the females are in preponderance in the ratio of 55 to 45; the youngest of our patients was 12 years old and the oldest, 69 years of age.

Table 2 presents the classification of these patients, with 22% in the minimal, 19% in the moderately advanced, 53% in the far advanced stage, and 6% with pleurisy and effusion. This table also shows that in 68 of these cases the sputum was positive on admission, while in four cases it was unknown; in the remaining cases, including the 6 pleural effusions with no or scant expectoration, it was negative. The cases in which the sputum was unknown refer to readmissions, in which the former records are not complete.

It is of significance to note that of the 90 cases with definite sputum findings, in 68 i. e., 84.04%, the sputum was positive for tubercle bacilli. It is to be borne in mind that the great majority of these sputum examinations have been made at the Sanatorium where it is a practice to examine 24-hour specimens on 5 to 8 different days before we accept negative results. In these instances guinea pig inoculations are made as a matter of

From the Peoria Municipal Tuberculosis Sanitarium

Read before Section on Medicine, Illinois State Medical Society, at Springfield, May 16, 1934.

routine and only if these have proven negative is the case pronounced as sputum negative.

We do stress this routine, because it happens only too often, when sputum examinations are done, that the patient is not properly instructed how to collect his specimen. Very often also the examining physician is satisfied with only one sputum examination, although it is well known that a single specimen of a sputum positive case might be found negative on certain occasions. It is also to be emphasized that for the microscopic examinations the proper particles of the sputum should be chosen. Sahli<sup>2</sup> takes definite stand against the use of anti-formin method of sputum examination, because he believes that by using this method, the laboratory technicians are only too apt to neglect the proper selection of sputum particles.

Considering the past history of the patients in our group, we were interested in the outstanding symptoms at the onset of the disease, so far as these could be determined in retrospect at the time of admission. Table 3 presents our findings. From this point of view the large number of cases with acute onset, oftentimes simulating pneumonia or an ordinary cold accompanied very often by cough or expectoration, is of the greatest significance. Forty-two cases belong in this group. It is reasonable to assume that had repeated sputum examinations been made, a positive result would have been obtained in many of these cases at the time these symptoms appeared.

Hemoptysis, as the first symptom, was found only in 7 cases. It has to be emphasized, however, that in an additional 13 cases, hemoptysis occurred in the later course of the disease, and was the symptom which caused the patient to seek medical advice. In an additional 10 cases hemoptysis occurred prior to the time a diagnosis of tuberculosis was made. The total number of cases, therefore, in which hemoptysis occurred prior to the time diagnosis was established, and in which the history of hemoptysis was helpful in establishing the diagnosis was 30.

Fatigue alone as the outstanding symptom at the onset of the disease was found only in 18 cases. This is undoubtedly due to the fact that a great proportion of our cases had an acute onset. Fatigue, however, frequently accompanied the other symptoms.

Cough, with or without expectoration, was an outstanding symptom at the onset in 23 cases.

This points to the fact that in a majority of cases cough or expectoration is a rather late symptom. This group does not include the cases with acute onset in which cough or expectoration was fairly frequent.

In the miscellaneous group, comprising 10 cases, hoarseness was found three times, pain in the chest twice, the latter two being cases of pleural effusion. In one instance the diagnosis was accidental, the patient being examined for some other disease. A rectal fistula was found in one case and abdominal pain in another. In this last case the symptoms of intestinal tuberculosis were in preponderance, and this patient died of ruptured multiple tuberculous intestinal ulcerations. No initial symptoms were found in one of the contact cases.

It is to be emphasized that in the contact group, comprising 10 cases, which were examined because a member of the family was suffering from pulmonary tuberculosis, symptoms pointing to the existence of the disease have been found by eliciting their history.

We were interested to learn how much time elapsed after the first symptoms appeared before the patient sought medical advice. Our findings in this respect are given in Table 4. From this table we find that only 43 had gone to a physician within one month after the appearance of symptoms. In the remaining group, 35 went to a doctor in the interval of 1 to 6 months, and in eleven instances medical advice was sought only after one year or more had elapsed from the appearance of symptoms. This table points to the fact that the early symptoms of the disease are very often not severe enough to incapacitate the patient so much that he is compelled to seek medical advice. It is evident from this table that we cannot rely on the presence of symptoms if we intend to find cases at the early stage of the disease. Findings like those shown in this table point to the necessity of periodic health examinations with especial reference to pulmonary tuberculosis.

The length of time needed to establish the diagnosis after the patient has sought medical advice is of great significance. Our findings in this respect are given in Table 5. This table emphasizes the fact that even in the far advanced group where the symptoms have naturally been more pronounced, in 29 cases, among the 53, i. e. in 54.71% of this group, more than one



month was needed to establish the diagnosis, and in eleven instances it has taken over a year to reach the conclusion that the patient was suffering from pulmonary tuberculosis. In many of these instances the patient was reluctant to return to his physician after the first visit, even when so instructed, or called on him only spasmodically so that the medical observation and diagnosis could obviously not be thorough.

In contrast to this, in the minimal group in 14 cases out of 22, i. e. in 63.60%, and in 9 cases out of 19, in the moderately advanced group, i. e. in 47.36% the diagnosis was established within one month.

It would seem to us that at times when the symptoms are rather vague and indefinite, as in the minimal group, the existence of pulmonary tuberculosis is relatively more often considered than the in the far advanced group when the symptoms of the disease might apparently be masked by the existence of some other condition, as bronchitis, or colds.

The establishment of the correct diagnosis will greatly depend upon the diagnostic methods used at the time of examination. Table 6 gives the facts pertaining to this question. Studying this table, we find that in 26 instances, comprised of ten contact cases, and sixteen who were referred by their family physician, the diagnostic clinic of our Sanatorium was instrumental in the establishment of a diagnosis. This fact points to the value of diagnostic Chest Clinics. In the remaining 74 cases where the diagnosis was established by the family physician, in 50 cases, i. e. in 67.43%, the x-ray was used, and in only 31 cases, i. e. in 41.89%, was a sputum examination made. In many of these cases both methods were employed.

These two facts tend to show that the x-ray apparently is more frequently used in diagnosing pulmonary tuberculosis than sputum examinations. It is evident that sputum examinations, the oldest of our auxiliary methods in the diagnosis of pulmonary tuberculosis, and the one which when positive, establishes the diagnosis with a 100% accuracy, are neglected.

The importance of x-ray examinations in the early diagnosis of pulmonary tuberculosis cannot be over-emphasized. Through them, changes in the lungs can be detected sooner than positive symptoms or physical signs of the disease appear. Their popularity, therefore is encourag-

ing and shows a desirable trend in the use of our diagnostic methods.

The study of table 7, which presents the time interval elapsed between the first visit to a doctor and the time of sputum examination, shows that of the 31 cases where a sputum examination was made, in only 11, i. e. in 35.48% was the examination carried out within one month after the visit, and that in 5 cases over one year elapsed before this examination was done. It is evident therefore, that even when sputum examinations are done, these are not resorted to early enough.

#### DISCUSSION

It is obvious from the data here presented that a number of factors are responsible for the fact that cases of pulmonary tuberculosis come only late under proper medical care at a time when our present day therapeutical methods are often of no avail. These factors might be grouped under three headings: 1. the nature of the disease, 2. the indifference and ignorance of patients, and 3. the delayed utilization on the part of the physician of well approved diagnostic methods.

The first symptoms of tuberculosis are either insidious, causing no alarm by their appearance, or they manifest themselves in the form of acute everyday diseases, like colds, bronchitis and other conditions when one is more apt to think of the passing nature of the illness than of the presence of tuberculosis. These acute symptoms might seem too trivial to the patient to seek medical advice, or in the case such medical advice is sought, the attending physician might be rather apt to overlook the presence of tuberculosis, especially so because these symptoms disappear in a rather short time.

The indifference of patients in seeking medical advice is often very surprising. It is of significance that for three of our patients even the occurrence of repeated hemoptyses was not enough to compel them to see a doctor. The further fact that in 35% of our cases 1 to 6 months elapsed, and in 11% more than one year, after the symptoms had appeared, before medical attention was sought, speaks in itself of the extent of this indifference.

While the factors referred to above cannot be changed to a very great extent directly by the medical profession, aside from carrying on a general educational campaign among the public,

much can be done in ameliorating the factors belonging to the last group. It is obvious that sputum examinations should be resorted to more often than is done at present. It has become a routine diagnostic procedure whenever a patient is examined to determine the blood pressure, analyze the urine, very often to make a complete blood count and differential count, Wassermann or Kahn tests whether or not there are symptoms pointing to the necessity of these examinations, although these frequently yield negative results when their need was not anticipated by the history or the physical signs in a given case. Why is it that 52 years after Robert Koch has irrefutably proven the etiological importance of the tubercle bacillus, sputum examinations have not become a routine part of our diagnostic methods whenever expectoration exists? Yet it is obvious to everyone who is versed in the diagnosis of tuberculosis that routine sputum examinations, done whether tuberculosis is suspected or not, will detect the existence of tuberculosis very often in cases where we least expect it.

In his address to the Annual Meeting of the Illinois Tuberculosis Association on April 30, 1934, Dr. Kennon Dunham emphasized the fact that routine sputum examinations would do far more for the eradication of pulmonary tuberculosis than any of our other diagnostic procedures.

The emphasis placed upon the importance of routine sputum examinations is not intended to minimize to the slightest degree the importance of other diagnostic procedures, especially of x-ray examinations. Neither does it intend to convey the thought that we should wait in establishing the diagnosis of pulmonary tuberculosis until tubercle bacilli appear in the sputum. It merely wishes to call attention to the use of an old, reliable diagnostic method which at present is not fully utilized.

The infrequent use of sputum examinations is the less understandable because their use does not entail any expense on the part of the physician or of the patient since the establishment of public health laboratories in which sputum examinations are carried out free of charge.

CONCLUSIONS

1. In order to ascertain the reason why a large number of patients enter tuberculosis sanatoria in the far advanced stage of the disease,

the history of 100 cases was studied, and pertinent facts are presented.

2. Among the reasons of this late entry are:

a. The insidious onset of the disease with trivial symptoms, not severe enough to compel the patient to seek medical advice.

b. The indifference of patients toward severe symptoms, such as hemoptysis, prolonged cough and fatigue.

c. The masking of symptoms of tuberculosis by symptoms of acute respiratory diseases.

d. The insufficient use of available diagnostic methods, such as x-ray and especially sputum examinations.

3. It is believed that by making proper sputum examinations a routine diagnostic procedure in every instance where expectoration exists, irrespective of whether tuberculosis is suspected or not, cases of pulmonary tuberculosis would be diagnosed more frequently, and in the earlier stage of the disease than is done at present.

4. Periodic health examinations, employing chest radiograms, establish the diagnosis of pulmonary tuberculosis at the earliest stage when neither subjective nor objective symptoms are present.

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TABLE 1—AGE GROUPS

12-20 Years	21-30 Years	31-50 Years	51 and over Years
10	49	34	7
Male	45	Youngest	12 years
Female	55	Oldest	69 years

TABLE 2—CLASSIFICATION OF PATIENTS

	Minimal 22	Mod. Adv. 19	Far Adv. 53	Pleural Effusion 6
Sputum				
Positive	2	16	50	0
Negative	18	3	1	6
Unknown	2	0	2	0

TABLE 3—OUTSTANDING SYMPTOMS AT ONSET

Symptoms	Min.	Mod. Adv.	Far Adv.	Pleural Effusion	Total
Acute respiratory....	6	9	23	4	42
Fatigue .....	5	4	9	0	18
Hemoptysis .....	3	1	3	0	7
Cough with or without expect. ....	6	3	14	0	23
Miscellaneous .....	2	2	4	2	10
Total .....	22	19	53	6	100



TABLE 4—FIRST VISIT TO A DOCTOR AFTER APPEARANCE OF SYMPTOMS

Classification	Within 1 Month	Within 6 Months	Within 1 Year	Over 1 Year
Minimal .....	8	4	6	4
Moderately advanced....	7	9	2	1
Far advanced .....	24	20	3	6
Pleural effusion .....	4	2	0	0
Total .....	43	35	11	11

TABLE 5—TIME INTERVAL BETWEEN FIRST VISIT AND DIAGNOSIS

Classification	Within 1 Month	Within 6 Months	Within 1 Year	Over 1 Year
Minimal .....	14	5	2	1
Moderately advanced ....	9	6	3	1
Far advanced .....	24	15	3	11
Pleural effusion .....	3	2	0	1
Total .....	50	28	8	14

TABLE 6—DIAGNOSTIC METHODS USED IN ESTABLISHING THE DIAGNOSIS

Classification	Sputum Exam.	X-ray	Physical Only	Contact	Referred to Clinic
Minimal .....	3	8	2	5	7
Moderately advanced. 8	13	0	3	1	1
Far advanced .....	19	24	7	2	8
Pleural effusion .....	1	5	0	0	0
Total .....	31	50	9	10	16

TABLE 7—TIME INTERVAL BETWEEN FIRST VISIT TO A DOCTOR AND SPUTUM EXAMINATION

Classification	Within 1 Month	Within 6 Months	Within 1 Year	Over 1 Year	No Sput. Exam.
Minimal .....	1	2	0	0	7
Moderately advanced. 4	2	1	1	1	7
Far advanced .....	6	8	1	4	24
Pleural effusion .....	0	1	0	0	5
Total .....	11	13	2	5	43

DISCUSSION

Dr. George T. Palmer (Springfield): Mr. Chairman and Gentlemen: The fact that fifty-two years have elapsed since the discovery of the tubercle bacillus and yet that we still listen attentively to the discussion of the diagnosis of tuberculosis, is indicative that we have by no means attained perfection in diagnosis. In the twenty-five years that I have been in tuberculosis work, I have seen numerous short cuts and cocksure methods of diagnosis which have been offered enthusiastically and then have been discarded or given their proper place of moderate usefulness.

It is very interesting, but it is not surprising that a paper of this kind, emphasizing the use of old and tried methods, should come from men like Dr. Pollak and Dr. McCorvie. I think you know that there are only three tuberculosis sanatoria in Illinois that have been fully approved by the American College of Surgeons. Dr. Pollak is at the head of one of the two public sanatoria in the State so approved.

Consequently, we may say that the technical methods of Dr. Pollak's sanatorium must be superior to those of most of the other sanatoria. Further, Dr. Pollak is doing better x-ray work than I have seen in other sanatoria, so much so that we have borrowed x-ray films from Dr. Pollak to be used as models in our own

x-ray department. Coming from an institution where the technical excellence is unquestioned, I feel that it is particularly significant that the speakers emphasize the importance of the old, tried and now greatly neglected procedure of sputum examination.

Dr. Pollak reminds us that the diagnosis of tuberculosis up to this time has been disappointing and he calls attention to the importance of the case history and of repeated sputum examination. Our experience, in our own Sanatorium, has been very much like that of Dr. Pollak. Seventy per cent. of our patients, all with well-defined tuberculosis, have never had sputum examination.

Dr. Pollak is right in saying that a sputum examination should be a part of every general examination, as much a part as blood pressure or urinalysis, and that if this were done we would not have anything like as many far advanced and dying consumptives as we now have.

It seems to me that the most effective and least expensive campaign that could be carried out against tuberculosis would consist of the routine sputum examination of every man, woman and child who coughs. This would bring to light a larger number of open cases of tuberculosis and would certainly come closer to striking at the roots of the tuberculosis problem than anything else we could do.

All of us who have been engaged in tuberculosis work over a long period of time recognize that to succeed in diagnosis we must employ every available means,—case history, physical examination, x-ray, tuberculin test, sedimentation test and repeated sputum examinations.

In this day for a man to minimize the importance of the x-ray is to admit that he is not skillful in the use of x-ray; for a man to minimize the importance of the physical examination is simply an admission that he is not familiar with the technique and possibilities of physical examination.

We have had numerous cases in which the physical examination has failed and in which the x-ray has solved the problem. Incidentally, we have had those cases in which both physical examination and x-ray have failed and yet where the sputum test has settled the question. (Applause.)

Dr. M. Pollak, Peoria: At first I would like to thank Dr. Palmer for his very flattering remarks about our institution.

The early diagnosis of pulmonary tuberculosis is in the hands of the general practitioner. People go to see him at first and he is the one who has to recognize it and refer the case for Sanitarium care.

I would like to emphasize again—because we cannot often enough—that sputum examinations be made every time we have a patient who coughs or expectorates. We are very often surprised in taking a case which is diagnosed as pneumonia, common cold or bronchitis and examine properly the sputum to find tubercle bacilli.

Another important thing is that the patient be instructed to collect a twenty-four hours' specimen of the sputum—from morning to the following morning,

both mornings included—because if you say to a patient "Send in your sputum to the laboratory," very often all the patient will do will be that he will remember it during the day and spit in the specimen bottle some saliva and you get the report back from the laboratory that the sputum is negative.

Moreover, we cannot be satisfied with one sputum examination alone, but these examinations have to be done repeatedly. I am convinced that if we would follow out this routine; especially so in the general hospitals where sputum examinations could be done routinely, just the same way as urine examinations and blood counts are done routinely, on every patient, we would get our patients under treatment far earlier that we do it today.

I thank you.

### ALLERGY IN GENERAL PRACTICE\*

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If the entire population of the state of Illinois were afflicted with one chronic ailment the physicians in the remainder of the country would certainly register an active interest in it. Further, these doctors would busy themselves in study and practice to fit themselves to manage such an important disease. In the United States there are some seven or more millions of individuals who are suffering from one or more of the allergic conditions. There are two millions or more of hay fever sufferers. There are probably close to a million asthmatics. There are numerous cases of hyperesthetic rhinitis, eczema, chronic urticaria, migraine and other manifestations of allergy. There is even some evidence that there is an increasing incidence in the allergic diseases. Is such an enormous group of suffering humanity deserving of our general attention?

That there is already a rapidly increasing interest in this subject is evident from a number of sources. There are two national societies\* composed of members specializing in this field and having annual and semi-annual meetings with extensive and comprehensive programs. Recently a number of local societies have sprung up. A journal\*\* devoted entirely to papers on

allergy is having a successful career. The prominence and frequency of papers and clinics on allergy in the programs of county, state, national and hospital meetings speak for an awakening of the just recognition of this field.

In the last two or three years the lay educational campaigns have diffused medical knowledge to such an extent that a goodly proportion of the public has become more critical and demanding in its medical services. Not infrequently it has happened that the doctor has had to keep pace with the growing education and demands of his patient. The physician can no longer deny them hay fever treatments when on the radio, in the newspaper and in popular lectures the sufferer learns that such treatment is available and has considerable possibilities of benefit. Many patients are no longer satisfied with injections of epinephrin for their asthma when they see and hear all around them evidence and stories of the importance of investigating the cause of their attacks.

As additional evidence of the rapidly growing interest in the subject of allergy the following is taken from an editorial in the May, 1934 issue of *Hygeia*. During 1932, 4,500 health questions were sent in to this magazine. Allergy did not appear among the first twenty-five subjects about which most frequent inquiries were made. However, in 1933, allergy ranked eighth in this same list.

Any lack of interest of the practitioner in the subject certainly cannot be due to the recency of its development. Many of the fundamentals were described a long time ago. For example, more than seventy-five years ago Blackley of England performed and described a skin test with pollen, which after seventy-five years is still not in the armamentarium of a good many members of our profession. The possibility of foods, hairs, feathers and drugs causing asthma was discussed fully in text-books almost a hundred years ago. Is it not about time that we begin to pay more serious attention to this field?

#### SIGNIFICANCE OF ALLERGY AND ALLERGIC DISEASES

Allergy may be briefly defined as a naturally acquired human hypersensitiveness showing a strong hereditary tendency. The pathological change occurring as a result of allergic irritation

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\*Association for the Study of Allergy and Society for the Study of Asthma and Allied Conditions.

\*\*The Journal of Allergy.



is either a localized edema or spasm of smooth muscle or a combination of both. The portion of the body involved in this reaction determines the presenting complaint. Favorite sites of localization are the nasal mucosa, the bronchi, the skin and the gastrointestinal tract. But there is practically no organ exempt from such reactions.

The grouping of the various allergic diseases is predicated on their common factors in etiology, the similarity in methods of diagnosis and the general principles involved in treatment. With slight modifications a consideration of the cause of one allergic manifestation, such as asthma, forms the basis of the appreciation also of the etiology of similar conditions such as hay fever, eczema and urticaria. It is true that in each of the manifestations variations exist which make further study necessary. Thus, the common groups of causes of allergic disease in general are the epidermal substances (feathers, hairs), foods, pollens, drugs, miscellaneous materials and bacteria. In asthma, feathers and hairs are more important, especially in older children and in adults; in urticaria food is the dominant etiologic factor; and in hay fever pollen is the most important cause.

The principles in diagnosis in the different allergic manifestations are also similar. The performance of the scratch tests is now an almost universal procedure. In some cases intracutaneous tests are performed and in still others conjunctival, nasal, bronchial and oral tests are necessary to make an etiologic diagnosis. In still others the indirect method, passive transfer, is necessary. Here again we find that there are also some differences in what is most applicable in the various allergic manifestations.

With respect to the specific therapy, it is also true that the common principles of elimination and desensitization apply to all allergic diseases. It is gratifying now to know that with the requisite skill on the part of the physician and good cooperation on the part of the patient about half of the asthma cases may be helped, 85 per cent. of the hay fever patients can be given satisfactory relief and the other types of allergies may be benefitted in about similar proportions. It is not my purpose here to discuss the details of either etiology, diagnosis or treatment, but

merely to call attention to their relationship and means of approach in study.

#### RÔLE OF PRACTITIONER

The history of allergy is an example of the chronology of any new and worthwhile phase or thought in medicine. First, there is always skepticism. It is fashionable to be a critic and deny everything if possible. Even Louis Pasteur, whose principles of germs as a cause of disease we now accept *in toto*, experienced years of bitter struggle with his super-critics. The second stage is overenthusiasm. This happened in the history of bacteriology, when everything from old age to cancer and hay fever, was attributed to living germs. It also happened, and is probably still happening, with respect to allergy. Inclusion of almost everything in the list of allergic conditions and the extensive and indiscriminate performance of skin tests are all too frequent, even now. It is not an uncommon experience for the writer to have patients referred to him for an allergic investigation, presenting such complaints as psoriasis, acne, arthritis, winter itch and ringworm infection. Closer study and better acquaintance with the problems will indicate that there are still a number of disease states which cannot be placed in the allergic group. Happily, the pendulum of overenthusiasm is already starting to swing back and I may predict that it will soon come to its true resting place.

The problems in allergy are not confined to the specialist in allergy. A hundred or even two hundred specialists cannot hope to cope with the personal problems of several millions of people. Every medical practitioner must acquaint himself with the principles of allergy in order to be able to handle at least the simple cases he encounters. And every practitioner, if he does not shut his eyes to facts, will meet with such cases. The rhinologist will have to do something for his patients who are troubled with hyperesthetic rhinitis or hay fever. The chest specialist frequently sees patients with asthma. The gastroenterologist has many instances of gastrointestinal allergy. The dermatologist is faced with the problems of urticaria, angioneurotic edema, eczema and contact dermatitis. The neurologist is consulted for migraine, which is frequently allergic. The urologist at times encounters bladder irritability due to food allergy.

The orthopedist may see an allergic joint. In the province of surgery the differentiation of abdominal allergy from a surgical abdomen is an ever increasing problem. The surgeon must also make decisions as to the safety of operations in asthmatic individuals. The obstetrician may have to know what may happen to the asthmatic woman during pregnancy. He must also know the facts about heredity in allergy in order to give the correct information to allergic parents. Drug allergy, which is more common than is ordinarily considered, and may at times be quite serious, should interest every physician. The pediatrician and general practitioner, the men who see all and must know a little about everything, certainly cannot afford to neglect the allergic problems in their patients.

What then should be the relationship of the general practitioner who meets problems in allergy to the specialist in allergy? It is my belief that there is room and need for both. The orthopedist has his function and place and yet the majority of fractures will and should continue to be treated by the general practitioner. It is my feeling that in the field of allergy the same situation is true. The bulk of the simpler cases should be handled by the general practitioner. There will still remain problems which require the skill and experience of the specialist.

#### HOW IS EXPERIENCE TO BE ACQUIRED?

It must be admitted that at the present time the proportion of allergy patients which the specialist must manage is considerably greater than in some of the other fields. It cannot be denied that in order for the average physician to assume the responsibility and care of some of the allergic individuals he will have to make more strenuous effort to obtain the information and acquire the necessary experience. Such study and training was required to prepare him to deal with fractures, diagnosis of heart lesions and the management of childbirth. There is no reason to believe that a similar degree of skill in the handling of hay fever, asthma or eczema will come without a similar effort. While it can be said that the essential training in the majority of conditions which the average practitioner may be called upon to manage was obtained in the medical school or during his service as an interne, training in allergy has usually not been ob-

tained in this way. When most of you were students the subject of allergy was just a pretty theory or was not even mentioned in your medical lectures. Even now the majority of medical schools give no systematic training in allergy to the undergraduate student, although many of these schools have developed elaborate clinics in this field. How, then, is information and training in this subject to be obtained? As a preliminary step it is recommended that the physician-student read thoroughly one or two of the simpler text-books,<sup>1, 2, 3</sup> now available. The larger and more encyclopedic works would be best left for future use after a working knowledge is acquired. After a systematic study of a practical text-book further readings in periodic literature should be planned. It is important that the choice of such articles be critical and selective.

While reading is a requisite, training and study under the guidance of some one experienced in the management of allergic diseases is usually necessary for a proper preparation. Visits to the clinics connected with many of the medical schools will provide at least some of the visual experience. For more fundamental experience and sufficient training to enable the practitioner to manage his allergic patients more satisfactory postgraduate instruction from men specializing in this field are now available.

And finally, may I remind you that with a reasonable foundation of basic knowledge careful observation in the pursuit of one's own practice is one of the best and oldest means of increasing skill and experience in any field.

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#### DISCUSSIONS

DR. I. PILOT, Chicago: I think Dr. Feinberg has made some valuable suggestions to the general practitioner and also to the internist.

I believe that a large proportion of practice is really on the basis of allergy, if we accept the term in the broad sense. The term allergy infers an altered response or reactivity that is usually a response in the direction of hyperactivity or hypersensitiveness.

If one looks into the history of allergy the term originally was used in connection with infections.



The Von Pirquet test, the tuberculin test, is a allergic response to tuberculin. Since then allergy has become quite broad. It applies not only to these immediate atopic reactions that have been mentioned here with reference to hay fever and asthma, but also is now applied to what we termed idiosyncrasies in the past. Idiosyncrasies to drugs are now referred to as allergic responses, for example to cinchophen, salvarsan, and quinine. All of these drugs we know, may give hypersensitive reactions.

I have always emphasized that allergy plays a tremendous role in the infectious diseases as it was originally described in the tuberculin test. We now find comparable tests that can be carried out in such infectious disease, for example as undulant fever, in tularemia, in such conditions of venereal diseases as lymphogranuloma inguinale, so-called Frei test. All of these are allergic tests that belong to the classification of the Von Pirquet reaction. Progress in allergy has been such that it must be recognized by the internist and he must make the procedures that are employed by the allergist a part of his own routine. At least a certain minimum number of tests will become the function of the general practitioner, and the internist.

The more complicated asthmatics, the more complicated cases of angioneurotic edema, etc., will have to be referred to the allergist, but the future certainly in allergy means that the practitioner must take cognizance of individuals who respond in a different way. Take for example: the rheumatic diseases. Rheumatic diseases are being recognized, although not proved, as being hypersensitive responses to certain agents or substances, particularly streptococci. If we add drug idiosyncrasies to rheumatic diseases, certain other infectious diseases, besides hay fever and asthma hrticaria, altogether they constitute a tremendous part of general practice, and the practice of the internist.

### PNEUMOTHORAX TREATMENT OF LOBAR PNEUMONIA

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The literature reports 50 cases of lobar pneumonia treated by artificial pneumothorax since 1921, with a cure of 47 and a mortality of three. The ages of these patients varied from six weeks to 62 years. In 41 of the cases, the pneumothorax treatment was given on the second to the tenth day, and in the remaining nine, the treatment was given late, which simply means that the ensuing complications of lobar pneumonia were en-

countered. Coghlan,<sup>1</sup> in 1932, reported six cases with recovery in five. He reported that a few hours after the pneumothorax therapy, a series of events occurred which were almost indistinguishable from a true crisis. This he labeled as a false crisis, for it was characterized by a drop temperature to 99 or 100, associated with profuse sweats, decrease in pulse rate and respirations, with a marked relief of cyanosis, dyspnea and pain of pleuritic origin. He noticed the particular improvement (within 3-5 hours) of the general well being of the patient, and a marked decrease in all the symptoms and findings which occur as a result of the severe toxemia. Within 24 hours he noticed a 25 per cent. drop in the white blood cells, with a corresponding rise of the blood chlorides. Lieberman and Leopold<sup>2</sup> produced lobar pneumonia in 36 dogs, 18 of which were treated by pneumothorax. Of the 36 dogs, 14 developed positive blood cultures; five dogs recovered without pneumothorax treatment, one of whom had a positive blood culture. Eighteen of the dogs were treated by pneumothorax on the second day, with 15 recoveries and three deaths. He reports an abrupt drop in the temperature and white blood count, with an easier and more normal respiration and appearance of well being. One of his dogs showed a change from a positive blood culture to that of a negative culture after treatment. He also states that of the 18 untreated dogs, 13 died, and five got well. Those dogs that died did so on the second and third day of the disease.

The technic of pneumothorax therapy in lobar pneumonia does not differ from that of pulmonary tuberculosis. It is comparatively simple and can be done at the bedside. However, I advise those clinicians who intend instituting this treatment to get their initial experience in cases of lung tuberculosis. The amount of air given to an adult varies between 200 and 400 cc; while that of a child, 100 to 200 cc. Coghlan reports that in his cases, he usually gave two refills, the first being anywhere from 3 to 400 cc. of air; and the second refill given 12 to 20 hours later of a lesser amount (50 to 100 cc. less). He states that the control of the pneumonia process is at first only temporary, persisting as long as air remains in the pleural cavity, and that the air is absorbed in a very few hours. If the collapse is kept up for 48 hours, the pathological process of the lung is usually brought to an end. Cogh-

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lan usually precedes his treatment by giving the patient  $\frac{1}{4}$  grain morphine sulphate, hypodermically, one hour before. In our first series of cases, we usually instituted two fillings, but we soon learned that one treatment usually would suffice. Our aim was to keep the lung collapsed for a period of 48 hours, so that the pathological process would be brought to an end with the production of a false crisis. It was interesting to note that after the introduction of the air in the free pleural cavity, the physical findings of the consolidated lung changed, characterized by a change from the dullness, tubular breathing and rales, to that of normal resonance or slight hyperresonance, with suppression of breath sounds (due to the artificial pneumothorax. If these physical findings of air in the pleural cavity persisted for 48 hours, it was not necessary to institute more than one refill. It is advisable to give the air early, as soon as a definite diagnosis is made. An x-ray picture should be taken in all cases to prove that you are dealing with a unilateral pneumonic process, for in bilateral cases the above treatment is contra-indicated.

#### *Report of Cases*

Case 1. Patient E. V., 33 year old white male, entered the Cook County Hospital on March 11, 1934, on the third day of the disease complaining of cough, fever, severe pain in the right chest, aggravated by coughing and breathing, and chills. His temperature was 104, pulse 100, respirations 28. He looked extremely toxic, with marked dyspnea, cyanosis, dilatation of the ali nasi, and a slight respiratory grunt. His blood pressure was 122/85. His essential findings were herpes labialis, with dullness, rales, tubular breathing and increased tactile fremitus over the right base. W.B.C. 12,200. A diagnosis of lobar pneumonia was made, which was verified by x-ray examination. The next day (March 12, 1934) his temperature rose to 105, respirations 36, pulse 110, and he appeared extremely toxic. He was then given 250 cc. of air into the right pleural cavity with no untoward effects. A few hours later he began to perspire profusely with a corresponding drop in pulse and respirations. His severe right pleuritic pain seemed to have been relieved immediately. The next day (March 13, 1934) the patient appeared comparatively comfortable, his cyanosis, dyspnea and pain had disappeared, and his temperature was 101.4 rectally (4th day). The physical findings then were those of a slight hyperresonance at the right base with an occasional rale, no tubular breathing, slight suppression of breath sounds. On the 5th day of illness, his temperature was 100.2 rectal, and his physical findings were as above. His temperature on the 6th day was around 98.2 rectally, and from then on he made an uneventful recovery, going home on the 14th day.

Case 2. Patient L. P., 44 year old white male,

entered the Cook County Hospital, March 15, 1934, on the second day of the disease complaining of chills, fever, cough and severe pain in the right chest. His temperature was 104, pulse 120 and respirations 38. His blood pressure was 125/85. He was extremely toxic, showing marked evidence of dyspnea and cyanosis. His essential findings were those of a right lower lobar pneumonia, which was confirmed (before pneumothorax therapy) by x-ray examination, W.B.C. 10,000. That day (March 15, 1934) 350 cc. of air was introduced into the right free pleural cavity with no untoward results. A few hours later the patient was perspiring freely. The next day (March 16, 1934) the patient felt considerably better, stating that the severe sticking pain in his right chest had disappeared entirely, and that he now could breathe with ease. His temperature was 103.6 rectal. His dyspnea and cyanosis were markedly diminished. On the fourth and fifth day his temperature was 102.5 rectal, and 101.2 rectal, respectively. He was afebrile on the sixth day and from then on made an uneventful recovery.

Case 3. A patient 35 years old, made, came in with a right lower lobe pneumonia, was given 350 cc. of air on the second day and made an uneventful recovery, with the production in a few hours of a false crisis. Unfortunately, his history was lost and the exact details cannot be mentioned.

Case 4. A 41 year old white male entered the Cook County Hospital on March 22, 1934, on the second day of his illness, complaining of chill, fever and pain in the right chest. His temperature was 105.2, pulse 122 and respirations 40. W.B.C. 12,000. He showed a right middle and lower lobe pneumonia, which was verified by x-ray examination. 450 cc of air, on the second day of admission, was introduced into the free pleural cavity with no untoward results. The next day (March 23, 1934) his condition remained unchanged, for he was still very toxic. His temperature was 103.2, and his dyspnea and cyanosis were quite marked. No additional air was introduced into the free pleural cavity, for he showed the physical findings of artificial pneumothorax, characterized by slight hyperresonance and suppression of breath sounds. He also developed a slight subcutaneous emphysema around the pneumothorax opening. However, his pleuritic pain was somewhat less pronounced. On the following day (March 24, 1934) he appeared much more toxic with definite findings of a pneumonic process on the opposite (left) side. His condition became progressively worse and he died on the sixth day of his illness, with a bilateral pneumonic process.

Case 5. A white male patient, P. T., aged 35 years, entered the Cook County Hospital, February 14, 1934, on the fourth day of illness complaining of cough, fever, chills, and pain in the left chest. His temperature was 104.8, pulse 124, respirations 28. Blood pressure 118/60, W.B.C. 13,750. He was cyanotic, flushed face, and presented the physical findings of dullness, tubular breathing, rales, pectoriloquy and increased tactile fremitus at the left base. A diagnosis of left lobar pneumonia was made. That afternoon (February 14, 1934) he was given 500 cc of air into the free



pleural cavity with no untoward results. In a few hours he felt much more comfortable, perspired profusely and stated that the severe pain in his left chest was considerably less marked. The next day (February 15, 1934), the condition of the patient was about the same. His temperature was 103.4, pulse 120 and respirations 36, and on physical examination he still showed dullness, rales and tubular breathing at the left base. At 5 P. M. of that day he was given an additional 300 cc. of air and his condition after the pneumothorax was somewhat better. The next day (February 16, 1934) his temperature was 102.4, pulse 136 and respirations 48, and he appeared very toxic. His pulse was weak and he was expectorating large amounts of blood stained sputum. The following day (February 17, 1934) his temperature was 103.2, pulse 110 and respirations 30. He was markedly cyanotic. In addition there were findings on the opposite side (right) showing dullness and rales, with extension of findings in the left lung. He expired at 4:50 P. M. of that day.

Case 6. J. P., a 39 year old white male patient, entered the Cook County Hospital on the fifth day of disease with cough, fever and pain in the right chest. His temperature was 103.6, pulse 112 and respirations 36. Blood pressure 112/68. He showed definite dullness over the lower third of the right lung posteriorly with tubular breathing, few rales and increased tactile fremitus. The left lung showed occasional inspiratory rales at the base. No x-ray was taken. A diagnosis of left lower lobar pneumonia was made. That evening at 8:30 P. M. 400 cc. of air (pneumothorax) was introduced into the right pleural cavity. The next day, (February 13, 1934) his temperature was 104, respirations 40 and he did not appear any better. He was given an additional 300 cc. of air, with no untoward effects at 9:45 A. M. At 3 P. M. he appeared acutely ill, showed marked distention of the abdomen, temperature 104.8, pulse 140, and he was in a semicomatose condition. Additional consolidative findings were then found on the left side. His condition got progressively worse and he died at 12:30 A. M. the following day (February 14, 1934).

Case 7. A. P., a 24 year old colored male, entered the Cook County Hospital on the second day of his illness, complaining of cough, fever, malaise and pain in the right chest. His temperature was 103.4, pulse 128 and respirations 32. Blood pressure 105/50. The right lower and middle lobes showed dullness, rales, tubular breathing, increased fremitus, and a pleural friction rub. In addition, there was a slight rigidity of the neck with a positive Brudzinski. The Kernig's were negative. The spinal fluid was slightly opalescent, under increased pressure, cell count 150 polymorphonuclear leucocytes, Pandy positive, and showed gram positive extracellular diplococci. A diagnosis of a right lower and middle lobar pneumonia, with a pneumococcus sepsis (meningitis) was made. The next day (February 11, 1934) his temperature was 104.4 and the physical findings in the lung were more marked. He then showed no signs of meningeal irritation. The following day (February 12, 1934) at 8 P. M. he was given 600 cc. of air into the right pleural cavity, with

no change in his condition. On the 13th he appeared to be a little improved, was perspiring profusely and stated that his pain in the right chest was less marked. His temperature was 102.6. That morning he was given an additional 400 cc. of air. His condition became progressively worse and he died on February 14, 1934, at 4 A. M.

#### DISCUSSION

A preliminary report of seven cases of lobar pneumonia which received pneumothorax treatment brought out a few interesting and practical points; of these seven, the mortality was four. The ideal case for the above treatment presents itself in early unilateral lobar pneumonia, which is verified both by physical findings and x-ray. It is advisable to take x-rays in all cases before pneumothorax treatment is given to prove that you are dealing with a unilateral lesion. A bilateral pneumonic process, or any complication associated with pneumonia is a contraindication to its usage. In selected unilateral, uncomplicated cases, it is a very valuable therapeutic procedure, with the immediate production of a false crisis and a general improvement in the well being of the patient. Particularly is one struck with the immediate relief of severe pleuritic pain which is encountered in many cases of lobar pneumonia, and if it is only used for the relief of the pleural pain, one has found a very simple and valuable procedure. The treatments were not associated with any untoward effects, and no deaths or complications could be attributed to its usage—thus proving that pneumothorax treatment in lobar pneumonia is not associated with symptoms of shock. The question arises as to the number of treatments which should be instituted—the literature reports anywhere from two to three. From the case reports mentioned above, our best results were obtained with only one treatment. As long as there are physical findings in the chest of a superimposed artificial pneumothorax, characterized by a change of dullness to more or less normal resonance or even slight hyperresonance, with a slight suppression of breath sounds, one knows that there is a superimposed artificial pneumothorax. If this collapse persists for at least 48 hours, the required therapeutic effect will be obtained.

#### CONCLUSIONS

1. Pneumothorax therapy in lobar pneumonia is a very valuable adjunct and is only

indicated in early, uncomplicated unilateral lesions.

2. It can be given in cases of pleural pneumonia with immediate relief of the pleuritic pain.

3. It is absolutely contraindicated in bilateral lesions, in complications and in late cases of lobar pneumonia.

4. It in itself does not cause any untoward symptoms.

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### AND WHAT HAPPENED AFTER THE EMPLOYEE'S ACCIDENT?

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That the evidentiary facts of what happened after the workman's alleged accident may greatly influence decisions of commissions and reviewing courts, is best shown in the case of *Hahn v. Industrial Commission et al.*<sup>1</sup> Deceased, a steam fitter, had been employed by the Yellow Sleeve Valve Engine Works, Inc., the defendant in error, for about nineteen days prior to his calamity. In the factory pipes containing electric wires extended down a wooden post to electric switches. On the day of the misfortune decedent had placed a stepladder about five feet tall against this post. He was standing on top of the ladder, facing the post. He had a chisel in one hand and a hammer in the other. With both hands above his head he was cutting a groove into the post in which to place a wire, when suddenly he fell from the ladder. He struck the guard rail around a lathe a few feet away from the post while falling, and his body landed on the floor between post and lathe. There was a scalp wound in his head about one inch long, from which blood flowed. He was carried into the hall entrance where he died in a minute or two. It was the contention of the claimant widow that decedent had died as a result of his fall, that, while prying with the chisel, he exerted enough force to tip the ladder, that he breathed after the fall, that his heart

beat, and that he bled from the wound in his head, all of which indicated that he had not died from heart failure. This was denied by the employer who advanced the theory that deceased had died from natural causes and had fallen because he was struck by death while working. Compensation was denied, and this appeal was brought to review the proceedings of the Commission. In affirming its order the Supreme Court of Illinois said:

"There is evidence tending to show that the deceased was prying with the chisel and that the prying forced the ladder from under him, but it is questionable how much weight should be given to this evidence. Other witnesses who had equal opportunity to see what happened testified that they could not say what caused him to fall. It is undisputed that when he fell he did not utter a sound and made no effort to catch himself or to break his fall. Some of the witnesses testified that he fell in a lump; that he went back straight; that he fell in a standing position; that he made a quarter turn; that he fell in a helpless condition, all crumpled up; that he appeared to be either dazed or unconscious; that he did not seem to be falling on account of a slip but seemed to be toppling over as if he did not know he was falling; that he breathed or gasped several times; that his heart beat; and that he opened his eyes. There is evidence that, when persons fall as the result of accident, they generally make an outcry and attempt to save themselves."

It is the summation of certain rules of "judicial diagnosis" of industrial accidents which this paper will deal with. And while the light of investigation is focalized upon what happened after the employee was hurt, comparisons of facts of the pre-accidental period,<sup>2</sup> of that of the attack of the vulnerating force with those of the post-accidental period are apt to bring out the contrast in sharper lines than would be otherwise possible.

In a typical accident case, after the vulnerating force has acted, the employee, if seriously injured, makes an outcry which attracts the curiosity of fellow workers who thus become witnesses in the ensuing litigation, even though they may not have been eyewitnesses. They see the physical evidence of the effects of the attack of the vulnerating force. The foreman is informed, first aid is given on the employer's premises. Thereafter the injured employee is turned over to a medical doctor, or if necessary, the patient is sent to a hospital in an ambulance. There the history of the case is taken, and treatment instituted. The employee either makes an uneventful recovery, becomes crippled, or



dies, as the case may be. From the daily experience and observation surrounding these different phases of the post-accidental period certain rules have been formulated which are used as standards of conduct of the employer as well as of the employee, and which indicate the probability or improbability of the happening of an industrial accident. But as human affairs are subject to deviation from the normal, it is obvious that these observations pertaining to men and circumstances are also subject to revisions and explanations. We may, therefore, say that the fact that links of the post-accidental happenings deviate from the normal or average does not necessarily indicate that no industrial accident has happened, provided that such deviation may reasonably be explained and may be found to harmonize with the theory of an industrial accident notwithstanding such deviation.

*Post-Accidental Happenings Accompanying or Immediately Following Accident.* As a general rule, the fact that the injured employee noticed some pain or other sign of violence to his body while engaged in his master's business, and when following immediately the attack of the alleged vulnerating force of apparently industrial character, tends to prove an industrial accident, and therefore, compensability. The reason is that the pain under such circumstances indicates a sudden event, unexpected and unforeseen. And while the testimony of the employee himself may be sufficient to establish his claim<sup>3</sup>, spontaneous manifestations of the state of mind of the injured employee indicative of a sudden and violent assault upon his bodily integrity become so much more persuasive, when immediately communicated by him to his fellow workers or some third party of credibility. The reason is that the victim has been deprived of his power of suppressing his feelings and of making it possible to act designedly and with deliberation. Thus, where the employee was struck by a timber about eight feet long at about the upper part of the inside of his thigh and at that moment he said: "Oh" and walked away, and later on a streptococci infection developed, the commission's denial to award compensation was reversed by the higher court, although the commission found that the attending physicians had not detected any break of the skin at the place of the injury complained of.<sup>4</sup> And where a cooper, while assisting another employee in rais-

ing a barrel weighing about 200 pounds, stopped in his efforts, was seen to put his hand to his head, to leave the cooler, and when asked if he had any pain or headache, answered: "I have a terrible pain, never had anything like it before," whereafter his apoplectic stroke became manifest, it was also held that he had suffered a compensable injury.<sup>5</sup>

But to this general rule there are exceptions which seem to contradict the principle. Thus, it may happen that the employee has been hurt in more than one place and yet he may complain of pain as to only one of them. In the Martin's Case<sup>6</sup> the employee had died from peritonitis as a result of his injuries. In affirming an award in favor of the widow claimant the Supreme Judicial Court of Maine commented upon the features of this case as follows: "It is true that there is testimony that the deceased did not complain of any injury below the knee to his fellow workmen at the time of the accident, or later to his wife or his physicians. This may have been due to the fact that the injury to the hip was the more painful, while the injury below the knee was apparently little more than a superficial cut or an abrasion of the skin; but for that very reason it may have been the more dangerous of the two, there being no open wound at his hip." While in this case it clearly appears that the employee's consciousness of pain was diverted from the apparently more dangerous injury to the other one, this case also shows another human trait, although in a somewhat disguised form: that small wounds not necessarily call for manifestations of pain to the outside. One has only to take the experiences of cases of tetanus with their frequent lack of history of pain or knowledge of the initial wound in order to realize the truth of this observation. Certain individuals have such a mental make-up that they will complain in the most obvious manner when experiencing but slight and transient pain. But there are others who will not so do. This may be due to the fact that they are dull by nature, or that they have been brought up to disregard pain.<sup>5</sup> There may be other sensations which outweigh those of pain such as an intense interest in the work at hand at the time of the injury. The different fears should not be forgotten, such as losing the job, being "kidded" by fellow workers, becoming temporarily laid off when complaining of an accident, losing

working time and, therefore, wages, particularly when the employee had had much trouble in obtaining employment, dislike for medical treatments and doctors, or even a mental cult may be responsible for the workman's silence. In many cases the apparent insignificance of the initial injury misleads the employee who, hoping to cure his ailment himself as efficiently as regular medical treatment might do, is applying home remedies and treatments in order to escape "red tape" or other disagreeable things. This is particularly the case where the employee is quite familiar with the nature of the injury received, or where the injury has lost its power of making an impression upon the workman for some other reasons. The psychology of the employer, as reflected in his intercourse with and in his policies toward his workmen, that of the coemployees, and finally that of the employee himself, therefore, may furnish a clue why pain had not been expressed by him when the accident occurred. In *Lampi v. Koponen et al*<sup>7</sup> the Supreme Court of Minnesota said: "It is true that Lampi did not go to a physician at once and that he did not speak of his injury or suffering on occasions when naturally he might have mentioned them, but some are stolid in the presence of pain and say little of their ills that not much is to be made of their silence." In this case the workman, while chopping wood, was hit by a twig in his eye. The injury finally resulted in loss of the eye. He had applied home treatments first, but later had consulted an eye specialist. The indifference of the employee as to his injury is also well shown in the case of *Warsaw Coal Co. v. Industrial Commission et al*,<sup>8</sup> where the claimant, a man 65 years of age, sustained a hernia while lifting lumps of coal. He had already a rupture on the other side. Just after having received the new hernia he went back to his box, prepared a newspaper pad, placed it under and over the new rupture for protection against it, rested for a while, and then went back to his work of loading and shooting coal until nine days later he became totally disabled. Furthermore, a man may mistake his pain after an industrial accident as being due to natural causes and report himself sick rather than injured. This is somewhat suggested in *Moschogianis v. Concrete Material & Mfg. Co. et al*.<sup>9</sup> where the order of the commission denying compensation was reversed and the injury adjudged

to be compensable. While proceeding with a truck loaded with sacks of cement towards his destination, unbeknown to the driver, some fifteen sacks fell onto the street car tracks. The motorman of the street car, stopped by the obstruction, continuously sounded his gong, thus hurrying up the clearing of his right-of-way. In consequence of the strenuous work of reloading the sacks the driver suffered a hernia. He did not notice the pain immediately. But as he proceeded on his route he had "cramps." Later he reported his condition to his employer, but apparently did not make any report of his accident. It is easily conceived under such circumstances how an employee may be induced by the nature of his pain, possibly identified as due to indigestion, to not report at all. Pregnant with satisfactory explanation is also the case<sup>10</sup> where one of six employees while engaged in moving a heavy oaken door was squeezed by its weight against the wall, the door being immediately righted and the operation proceeding thereafter. The injured man made no outcry, continued to assist in the work, but immediately thereafter laid down on a bench quite sick and helpless for the time being. It was at this time that the other employees for the first time learned of the accident. Held that the rapid development of tuberculosis thereafter arose out of the employment. Of course, not every outcry is necessarily one indicating physical pain due to an industrial accident. It may be the indication of some mental agony, as where an injury is anticipated which, however, did not materialize. An outcry of pain may furthermore be suppressed by other mental processes at the time of the accident: such as great mental excitement. In *American Mut. Liability Ins. Co. et al. v. Industrial Commission*<sup>11</sup> fellow workers testified that the deceased workman exclaimed excitedly: "I got sliver in my finger." In *Oklahoma-Arkansas Telephone Co. et al. v. Fries et al*.<sup>12</sup> the victim noticed first that she was bleeding from her mouth before she realized that she had been wounded by a gunshot. Here, the attention of the injured is drawn to concurrent events of strong mental influence and impression rather than to the pain incident to the injury itself. The instinct of self-preservation overshadows any other sensation, including that of pain, an explanation fully reconciling the lack of utterances of pain immediately after the injury was



inflicted. Where the employee is so utterly disabled that he has lost consciousness or power of speech, utterances of pain may also be missing. In *McGarry et al. v. Industrial Commission et al.*<sup>13</sup> the employee picked up a phone, when he received such a shock all over his body that it was difficult for him to release himself from the instrument. He felt a shock all over his body, but mostly on his right side. Similar are the situations of hemorrhages from the lungs, spitting blood, and so on as immediate consequences of industrial injuries.

Where the pain does not become pronounced enough immediately after the calamity to cause the workman to complain, in absence of any explanation to the contrary, one may be inclined to think that the vulnerating force could not have been sufficiently strong to cause an industrial accident as alleged by the employee. And this has been held in a number of decisions. In *Rosenkranz v. Industrial Commission of Colorado et al.*<sup>14</sup> the employee lifted some iron when something cracked in his back. He could do no lifting thereafter. About five weeks later he complained of pain in the sacroiliac joint, but the most serious symptoms developed about the time of the litigation. Held that the strain had been only a trifling matter, not enough to cause disability, and that the progress of his hypertrophic arthritis of the spine would have culminated when it did without the strain. But in an Oklahoma case<sup>15</sup> the contrary result was reached by the reviewing court. Here the employee noticed a strain which was but slight so that he did not give his injury another thought until he awakened during the night with pain. A comparison of these two cases would lead to the conclusion that the more closely this type of cases approaches those of immediate pain sensation, or utterances thereof, the greater the probability that they are results of industrial accidents.

There are other indications of industrial accidents to which the principles of pain may very well be applied in a like or similar manner. Thus, stopping work immediately after the infliction of the injury may fairly lead to the inference of an industrial accident.<sup>16</sup> But where the relator's fall, for instance, was not immediately disabling, but he complained of the injury and showed evidences thereof and applied home remedies which he kept at his work, but

four months later he was suffering from cancer, it was held that he might have suffered a compensable injury, even though he did not leave the employment, but completed his shift, and worked from day to day without much complaint, the reviewing court remarked that "it is not unusual to find workmen doing as relator did".<sup>17</sup>

Reporting to medical doctor immediately after the calamity is also a sign pointing to an industrial accident in absence of any showing to the contrary.<sup>18</sup> So favorable may be the inference that it may even outweigh admissions made by the employee against his own interest. In *Oklahoma Gas & Electric Co. et al. v. Slocum*<sup>19</sup> the workman stated to his treating physician that he did not get hurt, but that the pain began in the night. And yet compensation was awarded for aggravation of his pre-existing arthritis. But, where the employee claimed to have twisted his ankle while carrying heavy material, it was held that his disability did not result from his employment.<sup>20</sup> None of his fellow workers had heard any complaint that he was hurt. He worked until quitting time and told one or two employees that he was sick. He went to a hospital where he told one of the nurses that he was suffering from rheumatism, and was listed there on his own suggestion as a pay patient. There was further evidence that he had made no claim for compensation until about a month after the accident, in the meantime having written to the superintendent that he was sick, but not mentioning anything about his accident. Finally, the doctor testified that he had treated claimant for sciatica. Similar is the case of *Gaidos v. Industrial Accident Commission of California et al.*<sup>21</sup> where the evidence showed that claimant never attributed his condition to any accident. His ailment was diagnosed and treated by the doctor as lumbago until informed some weeks later of the alleged industrial accident.

Sometimes findings on autopsy,<sup>22</sup> of x-ray pictures,<sup>23</sup> or the very nature of the disease make the claimant's contention of an industrial accident highly improbable. Thus, in a Pennsylvania case<sup>24</sup> an excessive inhalation on a single occasion of smoke was held not to have caused asthma, while in a Minnesota case<sup>25</sup> judgment in favor of claimant was reversed by finding that Hodgkin's disease could not have been caused by hydrochloric acid fumes. In *Knight's Case*<sup>26</sup> the

post-mortem disclosed an aortic aneurysm. The claim that some exertion some three months ago, after which time decedent had worked regularly until his death, had caused his death, was held to be unfounded. But in *Gilliland v. Ash Grove Lime & Portland Cement Co.*<sup>27</sup> the court of review commented upon the profuseness of pulmonary hemorrhage from which the employee died before medical aid could reach him, reversing the decision of the lower court and holding that the facts indicated an accidental injury arising out of the employment.

Reporting the accident to the employer, the "company doctor," the first aid nurse, or any other duly authorized agent of the employer is another point apt to throw some light upon the question of compensability of the workman's disability. In *Halper v. The Golden Rule et al.*<sup>28</sup> it was found that the employer had been informed of the employee's injury within the statutory period, where the employee had reported about 6 days after the accident to the company's nurse that her leg was paining, which about three months later showed a sarcomatous growth. In other cases the lack of reporting has been held not to be fatal to recovery because not having been due to any fault of the employee. In *New Jersey Fidelity & Plate Glass Ins. Co. et al. v. Richey*<sup>29</sup> the Supreme Court found that the accident occurred on a Friday, that the employee continued to work on that day and the Saturday following, and that on the next Sunday the employee had called in a physician who had diagnosed the trouble as a strangulated hernia, which necessitated immediate hospitalization and operation from which the employee died. On the other hand, reports of accidents made out by the employer, or his duly authorized agent, sent to the insurance carrier which forwards them to the Industrial Commission, are to be considered evidence, even though containing admissions against the interest of the master.<sup>30</sup> But their weight of evidence is for the commission. Such report may therefore be contradicted by the employer.<sup>31</sup> The same holds true as to the mere fact that an employer has furnished medical care to an injured employee.<sup>32</sup> This does not constitute a waiver of the employer's right to subsequently show that the injury did not arise out of the employment. Mistake of fact, gratitude towards an old and faithful servant, or other considerations may explain

why medical treatments had been given to him notwithstanding the employer's resisting claims for compensation.

*The Aggravation of a Pre-existing Disease.* The post-accidental course of a pre-existing infirmity of the employee has certain peculiarities of its own which are helpful in establishing probability of industrial accident. Thus, where a disease, existing in time prior to the alleged accident, terminates in disability at an earlier date than reasonably to be expected according to the nature and extent of the disease when compared with the usual and natural course of like or similar pathologies, the presumption arises that the pre-existing infirmity has been influenced by the accident.<sup>33</sup> Sudden rapid progress of a disease which prior to and up to the time of the alleged accident progressed slowly is also suggestive of a charge to industry in absence of any explanation of intrinsic conditions such as acute exacerbations coming from within.<sup>34</sup> Where the disorder had been arrested prior to the time of the accident, an acute flare-up, otherwise unexplained, is likewise pregnant of suspicion of industry as causative factor.<sup>35</sup> Where the seat of post-accidental manifestation of disorder corresponds to that of the injury, an aggravation of the pre-existing infirmity, even though non-manifest, may fairly be contributed to industry, too.<sup>36</sup> And retardation of progress of injury to the former state of health after the accident, or absence of return thereto, are facts much compatible with the theory of industrial accidental happening and compensability.<sup>37</sup> A few instances will be given. In *Pace v. North Dakota Workmen's Compensation Bureau*<sup>38</sup> an apoplexy was held to be compensable, as the rupture of the blood vessel with the resulting apoplexy had taken place earlier because of excessive heat under which the employee had been working. In *Georgia Casualty Co. v. Industrial Accident Commission et al.*<sup>39</sup> death of the employee had been due to an anaesthetic given to him after an industrial accident. The employee had died from status lymphaticus. Held compensable. But where a moulder sustained a burn upon his foot and thereafter developed signs of myxedema, compensation for the aggravation of the myxedematous condition was denied.<sup>40</sup>

*Special Post-Accidental Problems:* (a) The "Fall" Cases. Assuming that an employee has fallen, and that the fall is claimed to have been



the proximate cause of his disability, are there any criteria which with a reasonable amount of probability indicate whether the fall naturally and probably caused the disability, or the latter preceded the former? So much is certain that a person may be presumed to have been fully conscious, if, when in distress, he made some voluntary effort to save himself, to break the force of the fall, or at least made an outcry of distress or pain, if nothing else. And consciousness before the fall may justify the inference that the employee was not the victim of the culmination of a pre-existing infirmity. The same holds true, when such acts occur during the fall itself. To a certain extent the reverse of this rule may also be applied. It is the fact of consciousness or unconsciousness in such cases as apoplexies, aortic aneurysms, heart strokes, epilepsy and so on, as evidenced by the victim's conduct during the fall itself which controls the decisions of compensability and non-compensability to a great extent. Compensation was awarded upon this principle in the case of a watchman,<sup>41</sup> 64 years of age, suffering from high blood pressure, who, when riding on a bicycle and losing his balance, attempted to save himself by grasping a board before he fell, the bicycle passing from under him. Or where a janitor suffered a stroke in an effort to avoid being crushed by a one hundred pound barrel which he had been rolling out of a cellar, but which had slipped back onto him, his subsequently appearing apoplexy was held to have arisen out of the employment.<sup>42</sup> (b) The "Apoplexy" Cases. In the apoplexy cases the interval of time between the apoplectic stroke and its appearance is important. In *Samoskie v. Philadelphia & Reading Coal and Iron Co.*<sup>43</sup> deceased complained of pain in his head after an interval of time since the attack of the industrial vulnerating force, variously estimated from 4 to 15 minutes. He then fell forward in a semi-conscious condition. In spite of the fact that the employee had suffered from arterio-sclerosis, compensation was awarded, but only after the insurance carrier had made four futile attempts to resist the claim. (c) The "Angina Pectoris" Cases. Quite different is the judicial attitude as to those heart cases in which the employee concededly could have died from natural causes at any time. Where death results immediately after the alleged industrial vulnerative attack,

compensation will generally be awarded. But where only symptoms of the disease arise, and where even a short interval of time elapses between the accidental happening and the manifestation of disability, compensation is likely to be denied. Thus, where the employee had finished his job of loading a wagon with bags of coal about 100 pounds in weight, and he thereafter walked about 200 feet without any complaint of sickness or of injury, sat down striking a match to light his pipe, and while so doing collapsed, dying shortly thereafter, compensation was denied.<sup>44</sup> And where the employee was engaged prior to his calamity in work about the stage and in helping moving a heavy movietone machine, the same conclusion was arrived at, as after having finished his work the employee had walked about, talked to his manager and his wife, and apparently suffered no ill-effects from his work, when about half an hour thereafter he suddenly died from an acute heart attack due to coronary sclerosis.<sup>45</sup> (d.) The "Hernia" Cases. The hernia cases also show some peculiarities. There are certain jurisdictions in which pain and appearance of the hernial development are so important as evidentiary facts that recovery depends upon proof of these facts. The appearance of the hernia must be accompanied by pain.<sup>46</sup> And courts have sometimes even laid down standards of intensity of pain. In *Young v. Louisiana Highway Commission*<sup>47</sup> the reviewing court remarked that the testimony did not impress one as disclosing that the hernia from which the employee was suffering was caused by his alleged accidental injury or that "there was severe pain in the hernial region," "that there was such prostration that plaintiff was compelled to cease work immediately," or "that there was such physical distress that the attendance of a physician was required within 48 hours—some of the attendant conditions necessary to entitle him under the statute to compensation."

The article thus gives a cross-section of what commissions and courts lay stress upon, particularly when the case is doubtful. When there is a clear preponderance of evidence in favor of the workman, many evidentiary facts may be waived, or, if ambiguous, may be interpreted in his favor. But where the scales are in balance as evenly as in our opening case, little items become matters of great judicial diagnostic value. This *Hahn v. Industrial Commission et al.*<sup>48</sup>

case is a good instance. Here, the deceased had had, according to one medical expert, an aggravated rupture at the side of an old appendix operation, he also had absorbed considerable pus which would tend to cause a heart lesion. Some other doctor diagnosed his ailment as an acute dilatation of his heart. An autopsy showed that decedent had suffered from an enlarged thymus gland which would predispose to sudden death with or without any industrial cause as contributing factor. All in all there were advanced so many different medical theories, of a somewhat speculative character, that the reviewing court declared that the employer's liability could not be based "on a choice between two views equally compatible with the evidence," but that "the liability must be based upon facts established by evidence," and that "where the cause of injury or death is equally consistent with an accident and with no accident, compensation will be denied."

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## SURGICAL COMPLICATIONS OF PEPTIC ULCER

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Peptic ulcer is apparently on the increase. Some estimate that ten to twelve per cent. of our population suffer from it. This increase may be only apparent. Thanks to the yeomanry work done by Moynihan, the Mayos, Sippy, Deaver and many others, the medical profession has become ulcer conscious. As a result, more dyspepsias are being worked up and more ulcers are being uncovered.

The complications of ulcer were known long before we had our present precise knowledge of the lesion itself. All during the 19th century, fatal cases of general peritonitis due to ruptured ulcer were being reported. Some of these were operated on unfortunately, however, too late. Today, thanks to advancement in diagnostic science, we diagnose and operate early. As a consequence, the mortality is steadily and correspondingly decreasing. To exemplify: 43 per cent. of the cases reported between 1903 and 1918 died;



of the cases reported between 1926 and 1932, only 22 per cent. died.

Coming now to the specific consideration of the complications, I don't need to tell you that the serious complications are perforation, stenosis, carcinomatous degeneration and hemorrhage.

*Perforation.*—Perforation occurs most often in men of the third and fourth decade. It is more frequent in the spring and fall, thus corresponding to the seasonal exacerbations so commonly seen in the chronic ulcer cases. Acute ulcers rarely perforate. Multiple ulcers and repeated perforations in the same individual occur. Rarely do bleeding ulcers perforate and vice versa.

The exciting cause of the actual perforation is difficult to fix. Perforation is usually thought to occur within two hours of a heavy meal or after exertion. Meyer and Brams, however, report a large number of cases in which the perforation occurred later than two hours, in fact 5 occurred during sleep.

A brief discussion of the pathological changes may be of interest. On the operating table the lesion is as often seen in the stomach as in the duodenum. It is usually near the pylorus on the lesser curvature of the stomach or on the anterior or antero-superior wall of the duodenum. The size varies from a pin point opening to one that would easily admit the finger. Surrounding the ulcer is usually dense, friable scar tissue. An associated gastritis is common. Masses of fibrin are often present and these sometimes bind the stomach to the liver, gall bladder, intestinal loops, omentum, or anterior abdominal wall. In some cases these adhesions are firm enough to close the perforation—at least temporarily. In most cases, however, the stomach contents leak into the general peritoneal cavity. In the latter eventuality, general peritonitis results. In the former cases, where the perforation is plugged with omentum, fibrin, or adhesion to some other abdominal organ, there are several possibilities.

As first of these possibilities, the perforation may close permanently. The small amount of extravasated stomach content is absorbed and the patient recovers. This is the closed perforation of Schnitzler, formes frustes of Vaughan and Singer, and explains the few medical recoveries.

As another possibility, the closure is only tem-

porary. The patient recovers from the original attack only to suffer one or more severe attacks of pain due to leaking. In still other cases the extravasated stomach contents are walled off and a perigastric, subphrenic or subhepatic abscess formed which may, or may not communicate with the interior of the stomach.

The symptoms of perforation are, as a rule, quite characteristic. Often the history of preceding gastric distress or even of medical treatment or ulcer can be elicited. Often or a day or so preceding the catastrophe the ulcer pain has been more constant and may be of a different type.

The onset is usually abrupt, with severe pain in the epigastrium. The victim often lies immobile on his side with his knees flexed and his head bent down. His face is usually pale, beaded with perspiration. He has a look of mortal anguish. The abdomen is rigid. His pulse is raised and the temperature subnormal. Fluoroscopy may show a gas bubble under the diaphragm. However, it must be remembered that if the bubble is not found, perforation cannot be excluded. Fluid in the flanks and obliteration of the liver dullness are often late signs and consequently of little value in the early diagnosis.

Very few abdominal conditions present such a picture. In acute cholecystitis the patient is usually very restless. He tosses about the bed; he may even try to "walk the pain off" by pacing up and down the room.

Acute pancreatitis usually occurs in fat, middle-aged men who may give a history of gall bladder disease and who are usually steady users of alcohol. The pain is even more severe and is not rarely referred to the umbilicus. The patient may be slightly cyanotic. The shock is extreme. I often think we would diagnose acute pancreatitis more frequently if we just happened to think of the condition.

In pneumonia the initial chill, the rapid respiration out of proportion to the pulse, the high temperature, the bloody expectoration are the differential signs.

From what has been said it is evident that casual examination may be sufficient to establish the diagnosis in a typical early case. However, we are not always blessed with a typical early case. In the late cases, diagnosis is sometimes very difficult. For example: some years ago I saw a young man who had been admitted to the ward with abdominal pain referred to his whole

right side of abdomen. This had been present fifty-six hours. He had vomited once soon after the inception of the pain. On examination the right side of abdomen was tender and rigid. Naturally we thought immediately of appendicitis. On further questioning, a history of indefinite gastric trouble was elicited. This caused us to entertain a suspicion of a ruptured ulcer. A gas bubble was demonstrated by fluoroscopy. At operation a closed perforation was found. Today we do not operate on these cases unless the symptom return. Treatment of perforation is immediate surgery. The urgent need for surgery is evidenced by the following figures: The mortality for cases operated on within the first twelve hours is 15 per cent., for cases operated on between the twelfth and the twenty-fourth hour, 30 per cent., for cases operated on after twenty-four hours, 70 per cent.

In all fairness, however, it must be admitted that the time element is not the only factor influencing mortality. Death is due to peritonitis which, in turn, is proportionate to the amount of peritoneal soiling that occurs before operation. Thus, a large opening in a full stomach may flood the peritoneal cavity with stomach contents in a very short time. A pin point opening in an empty stomach, on the other hand, may be accompanied by very slight peritoneal contamination. Again, in other cases, as said before, the perforation may be closed. This closure probably explains the few cases that recover without an operation and the successful operations in certain late cases.

As regards technic: The operation that seems best to me is simple closure of the perforation usually without drainage of the abdomen. With this procedure, further contamination of the peritoneum is prevented. If further operative procedures are needed, they can be done later in a better field for work and in a patient in much better surgical condition.

It is true that statistics from Germany seem to prove that resection carries less mortality. It must be remembered, however, that in Central Europe the high mortality of simple suture is probably due to the fact that it is reserved for the more extreme cases.

Of course, each case should be individualized. If the condition of the patient is exceptionally good and indications are present for further operative work, such as gastro-enterostomy or

resection, this work may be done. In penetrating ulcers, resection is certainly indicated if it is feasible. It must be remembered that if any damage is done the pancreas, drainage to the outside is imperative. This can readily be done by removing all but the base of the ulcer according to the method of Finstrer.

*Stenosis.*—Coming next to the second complication—stenosis. Cicatricial stenosis usually occurs after many years of ulceration. The cardinal symptoms are almost constant gastric distress, loss of weight, vomiting of large amounts of fluid or even of food eaten the day before, and, sometimes, visible peristalsis; symptoms of tetany are rarely present.

X-ray usually shows a large, dilated stomach, or an hour-glass stomach. Oftentimes the stenosis is not complete but is made so by pyloric spasm. Loss of weight may be extreme but is usually gradual, due to the fact that some food usually is forced into the intestines. In fact, in older individuals the loss of weight may be so gradual that the patient is nearly in extremis before seeking medical aid. Younger people are usually not so tolerant.

*Carcinomatous Degeneration.*—As the third complication we will consider briefly carcinomatous degeneration of ulcer. This occurs, according to common estimates, in 3 to 5 per cent. of ulcer cases.

Usually gastric carcinoma occurs as a primary condition. It may simulate ulcer for a considerable period. When cancer is secondary to gastric ulcer, it usually is situated at the pylorus and the symptoms are, in essence, those of pyloric stenosis. The differential diagnosis between malignant and benign stenosis is often difficult, even on the operating table. Usually the diagnosis of carcinoma is made by demonstrating a large filling defect in the x-ray pictures. The presence of anacidity is also a helpful factor in the diagnosis.

The treatment of cicatricial stenosis is surgery but not immediately. Usually a few days' rest, but not absolutely in bed, will render the subsequent gastroenterostomy, or pyloroplasty a much safer procedure. In this preoperative treatment, dextrose is usually given by mouth, say 200 c.c. of a 10 per cent. solution every four hours, by rectum and, if necessary, subcutaneously and even intravenously. The stomach is lavaged at least once daily. If anemia is marked, blood



transfusion is certainly worth while. This preliminary treatment causes the spastic obstruction to disappear and relieves the stomach of the large quantities of putrid and fermented material previously present in it. At the same time it prepares the patient for the post-operative use of the stomach tube.

In my opinion, posterior gastroenterostomy is the operation par excellence in cicatricial stenosis. If the individual is moderately careful in his diet after the operation, the procedure usually results in a permanent cure. In carcinomatous degeneration of ulcer, the alternative between resection and palliative measures depends, of course, on the pathology present.

*Hemorrhage.*—Gastric hemorrhage, the last complication to be considered, is never a surgical emergency. In the first place, we must remember that gastric hemorrhage can occur not only from a peptic ulcer but also in many other conditions, including cirrhosis of the liver and purpura hemorrhagica.

Hemorrhage, in a man over forty-five years of age may be, and often is, a very serious proposition. It may even be fatal if the hemorrhage is continuous or repeated. The seriousness of hemorrhage is usually proportionate to the size of the vessel eroded. Continuous seepage, however, which is only detectable by chemical tests of the stool may lead to severe secondary anemia. It is true that very few young individuals die from the first hemorrhage and it is certainly true that a major operation in a bleeding debilitated patient is apt to be followed by a fatality. We must bear in mind, too, that in actual operation, even after prolonged search, we are occasionally unable to ligate the bleeding point.

The best treatment during active hemorrhage is rest in bed, ice bag to abdomen, nothing by mouth, plenty of M.S. and fluids subcutaneously and rectally. Personally, I believe in the administration of glucose in soda by rectum. As to blood transfusion, there is a logical difference of opinion as to its use during the acute stages. After the acute bleeding is stopped, there is no question of its value.

It is my opinion that the first hemorrhage, other things being equal, is no indication for operation. After a second hemorrhage, however, and when the hemorrhage is stopped, operation with resection of the ulcer, if possible, is indicated.

In conclusion, it must be remembered that peptic ulcer always holds dangerous potentialities. Wherever there is ulcer there is possibility of catastrophe. There is some controversy as to whether the treatment of an uncomplicated ulcer is surgical or medical. There can be no controversy as to the treatment of ulcer with complications. It is, and must be surgical. This does not mean, of course, that the physician has no part in the surgical program. He has a part and an important one. In the first place, it is to his diagnostic skill and continuous supervision that we owe the diagnosis. In the second place, it is through his co-operation before and after the operation that we can hope for the best results.

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## THE RESULTS OF GLANDULAR THERAPY IN MONGOLIAN IDIOTS

IVAN N. RADEFF, M.D.

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At the Dixon State Hospital during 1932, with the permission of Dr. W. G. Murray, I began to study the effects of glandular therapy in Mongolian idiots. I selected one male mongol, age four years, and one female, age five years, and gradually added cases as they entered the institution, up to nine cases. Of this number seven were males and two females. One of the males was colored. The patients were between the ages of one and eight years. Two have died since beginning treatment, from gastroenteritis and pneumonia, respectively. The youngest patients in the group died. The two patients first selected for study have been on treatment for more than eighteen months.

Timme's treatment was employed. The patients were given thyroid powder, one-tenth of a grain, gradually increased to one-quarter grain; potassium iodide saturated solution, two drops daily; anterior lobe of pituitary, one grain twice daily, gradually increased to two grains three times daily; whole pituitary gland, one-tenth of a grain, two times daily, gradually increased to one-quarter grain three times daily. In one week, in addition to this treatment, was added antuitrin, one-half ampoule intramuscularly twice a week, gradually increased to one ampoule three times a week.

Later on Timme's treatment was modified as follows: Anterior lobe of pituitary, three grains

three times a day; whole pituitary, one-half grain three times a day; thyroid, one-half grain once a day, and antuitrin, one ampoule once a day.

A week after the treatment was started each patient showed increased activity and a tendency to talk. Their language was not improved in the beginning as far as clearness of words was concerned, but there was a constant attempt to speak. These findings were present in all the cases consecutively.

The following symptoms were more pronounced in some patients and less in others: Polydipsia, polyphagia, polyuria, but no sugar was found in the urine.

As a result of treatment the patients gained in weight and height. The tongue did not protrude between the lips and in some cases was entirely withdrawn. The fissures of the tongue disappeared. The skin became smooth, thinner and more transparent. In some the hair fell and the new hair grew much finer and shiny. The hypertonia musculorum was not so pronounced. The eyelashes grew very long. The chronic conditions of the eyes, conjunctivitis and blepharitis, disappeared and did not recur. In some cases there was improvement of mental capacity.

One most interesting case is worthy of mention:

J. G., three years and three months of age, was admitted to the Dixon State Hospital on November 2, 1931. On admission his mental age was seven months and the intelligence quotient 17, which placed him in the idiot group. He was put on treatment on August 12, 1932, almost ten months after admission and during which time he had shown no improvement. After treatment his mental age increased to nineteen months and the intelligence quotient to 37, more than double that on entrance. He grew thirteen inches taller. In the first few months he gained about ten pounds in weight, but later on lost some of this gain. His tongue did not protrude between his lips and the fissures of the tongue disappeared. The testicles descended. His eyelashes became longer and his hair changed to a more soft and shiny type. He could say short sentences clearly. He developed severe temper tantrums. Since August, 1933, in spite of treatment, his intelligence quotient has gradually dropped until now it is .30.

The female mongol, who has been on treatment for the same length of time, showed some improvement of speech, but her mental age gradually dropped from an intelligence quotient of 34 when treatment was started to 24 at the present time.

The rest of the mongols showed very slight improvement of the intelligence quotient. However, some

of them have not been on treatment long enough to produce much change.

The glandular product that we used was as fresh as could be obtained from the regular market and was secured from well known pharmaceutical houses.

The two patients mentioned above received the same drugs in the same amounts, and yet they showed a reverse progress to each other in mental development.

Conclusion: The above type of treatment is of no significant value to these patients. The slight improvement they showed does not make their life more pleasant or more comfortable. They still will remain as institutional cases.

Dixon State Hospital.

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## INFANT NUTRITION: SOME PRINCIPLES FOR INFANTS AND ADULTS

JESSE R. GERSTLEY, M.D.

CHICAGO

This is a summary of ten years' investigation. I first became interested in a study of the acidity of infants' stools by trying to determine whether lactose added to cow's milk would produce diarrhea. The plan of experiment was to determine the amount of acid excreted in the feces. This may sound a bit theoretical, but in reality the whole theory is very simple. There are countless millions of bacteria normally present in the intestine. These bacteria will ferment any unabsorbed sugar into acids. According to all the older theories, the acids resulting from such fermentation irritate the intestine and produce diarrhea. Hence a determination of the amount of acid and the degree of acidity of the stool would give some indication of the fate of carbohydrate in the intestine. The results during these past years have been so contradictory to the prevailing theories that they have practically revolutionized some of my principles of infant feeding.

Our procedure was first to establish a control by determining conditions in the normal breast fed infant. Here the stool is soft and relatively small, averaging twenty to forty grams. It contains a moderate amount of acid, both free and in various combinations. But the outstanding feature is the high *degree* of acidity as shown by the hydrogen ion concentration. In short then, the stool of the breast fed is small and highly acid.

The stool of the baby receiving whole cow's



milk is generally constipated, formed, heavier, contains less free acid on titration and above all, the degree or intensity of such acidity is much less than in the breast fed. It may even be alkaline.

While the normal artificially fed infant presented results which were generally constant, those with diarrhea offered bewildering difficulties. No matter whether the feeding had been plain cow's milk, or cow's milk with lactose even up to twelve per cent. the amount of acid excreted showed no constancy whatsoever and was utterly unrelated to the amount of lactose in the mixture. Frequently babies on simple cow's milk excreted far more acid than did those with a twelve per cent. lactose addition. Again at times an infant would have watery stools and high acid excretion and then with absolutely no change in the diet the diarrhea and acids would disappear. Sometimes the addition of lactose would be followed by a slight increase in total acid excretion and then a further increase in the sugar resulted in a diminution. In all cases with increased acid excretion the acid existed not so much in a free as in a combined state. In other words, it had been neutralized in the intestine.

Clinically, parenteral infections were by far the most common cause of the diarrheas. Certainly the symptoms were unrelated to the amount of lactose in the diet. If dietetic factors were involved, I am beginning to think we should go back forty years and reinvestigate the protein.

The mechanism involved in these parenteral diarrheas is a matter of further study. The daily total weight of the stool is greatly increased. Hence the total acid excretion is somewhat increased. But this acid has been so neutralized in the intestine that the actual acidity of the stool is relatively low. Gram for gram it contains much less acid than does the stool of the breast fed. In all these years we never found a diarrheal stool of the artificially fed with anywhere near the degree of acidity of that of the normal breast fed infant. One thing is certain. Whatever the mechanism involved, the theory of an excessive lactose fermentation *per se* as a cause of severe diarrhea and nutritional disturbance must be given up.

After several years of such bewildering results we gradually began to see the possibility of some order. When lactose had been increased gradually

to twelve per cent. in the bottle of a normal infant on whole cow's milk, the following reaction often took place. After about two weeks or more the stools would assume some of the characteristics of the breast fed. They became softer, typically yellow, more acid in hydrogen ion concentration and often smaller. This was absolutely without explanation until it occurred to us that by adding twelve per cent. lactose to whole cow's milk we had a mixture containing sixteen per cent. lactose and four per cent. protein. This gave a ratio of lactose to protein approximating that in breast milk. It is possible that such a relationship may be one of the essentials in determining some of the characteristics of the infant's stool. In passing, one cannot help being astonished at the powerful alkalinizing effects of cow's milk protein, if it takes sixteen per cent. lactose to produce enough acid by its fermentation to overcome the alkalinizing, effects of only four per cent. cow's milk protein.

If this ratio is important one would expect to find changes in the intestinal flora. This is just what happened in most of our experimental work. After the babies had been on this mixture for a minimum of two weeks very frequently the gram-negative colon bacillus flora typical of cow's milk feeding changed to the gram-positive *bifidus acidophilus* flora of the breast fed.

Further work showed that some babies are exceptions to this rule, and require even more lactose than this basic four to one ratio. Four to one seems a minimum. The rule also is inconstant with milk dilutions. Why this is I do not know. Possibly some babies require more carbohydrate than others and absorb more from the intestine, leaving less residue. At any rate, enough lactose must be given to leave a certain excess in the alimentary tract.

In these studies the effect of lactose seemed specific. We repeated the work with another carbohydrate but found that it had no effect upon the acids excreted. In fact, it left the stools more alkaline than did plain cow's milk. It likewise had no influence upon the intestinal flora and even in additions up to twelve per cent. still left the stools with the colon bacillus predominating.

Summarizing the work of the ten years we have tentatively constructed the following picture: The *bifidus-acidophilus* organisms flourish in degrees of acidity which inhibit the growth of the colon bacillus, and other gram-negative or-

ganisms. On simple cow's milk feedings the intestinal acidity is low enough to permit an overgrowth of colon bacilli. Small amounts of lactose added to the bottle are all absorbed. In larger quantity the *unabsorbed* fraction ferments into certain acids but these acids are neutralized either by the cow's milk itself or some factor in the intestine. There is still insufficient acidity to inhibit the colon bacilli. But now if the lactose is further increased to pass the critical point, enough acid will be produced by fermentation to overcome all alkalizing influences and to be of such intensity as to inhibit the growth of the gram-negative flora and leave the gram-positive organisms flourishing. The stool now assumes the characteristics of the breast fed.

In view of the popularity of acid milks we repeated some of the work using a mixture containing ninety drops of lactic acid to a quart of cow's milk. While the addition of acid to cow's milk may make the combination easier of gastric digestion, it had no effect upon the acids in the stool. The amount of acid excreted was no greater than on the whole cow's milk feeding. The intestinal flora remained unchanged. It took a minimum of twelve per cent. lactose added to this mixture to produce the changes identical to those found when twelve per cent. lactose was added to whole cow's milk. Only then did the stool acidity shift to resemble that of the breast fed and the gram-positive flora develop. In other words, the addition of acid to milk seems to have no effect upon intestinal digestion and whatever lactic acid is found in the stool does not result from the lactic acid added to the milk, but from the intestinal fermentation of the added lactose. As in the original studies, the addition of another type of carbohydrate had no such effect.

There is a new type of lactose on the market called Beta-lactose. I have tried it in a few experiments. As far as we have gone, it seems to produce the same effects as the ordinary form. It should be of interest to the practitioner these days because, I believe, it is somewhat cheaper.

Our studies should be of significance both to the internist and the pediatrician. The internist should be interested in realizing that the factor determining the presence of a fermentative flora in the intestine is not the feeding of acidophilus organisms or the addition of an indefinite amount of lactose to the diet. The essential factor is creating an intestinal condition favorable

to the growth of the acidophilus flora and unfavorable to the putrefactive type. This can be accomplished only by adding lactose in that quantity which by its fermentation will furnish enough acid to overcome the alkalizing properties of the diet. The diet of the adult is so much more complicated than that of the infant that it demands a great deal more study. What the alkalizing properties in the intestine of meat, eggs, and other types of protein and minerals consumed by adults are, I do not know, but at any rate, enough lactose must be added to more than overcome these properties and leave a residue of sufficient acidity to discourage the putrefaction flora and encourage the growth of the bifidus acidophilus group.

The pediatrician let me warn, that a combination of whole cow's milk with twelve per cent. carbohydrate is not an ideal infant's food. This mixture contains an excess of calories and may subject the infant to dangerous over-feeding. What we have demonstrated experimentally with this mixture is the importance of definite amounts of lactose as a factor determining certain characteristics of the stool. From the standpoint of feeding if we take such a mixture and cut it in half or two-thirds, depending on the infant's requirements, we have a mixture keeping the same proportions and adapted to the child's body. It is interesting to note that pediatricians have arrived at such combinations through long experience and empiricism. I have used this combination in my practice for several years and find it the most successful of all.

In this connection let me call attention to what seems one of the greatest fallacies that has occurred in all infant feeding and one which has been accepted without question by the pediatricians, including myself, for the last twenty years, namely, that the stool of the artificially fed infant should be of the constipated type. As I look back over these years from this later viewpoint, it seems to me that we all have committed the same error. We have always accepted the stool of the breast fed infant as the normal. No matter how frequently or watery or green, we never considered the stool *per se* as an indication for removing the baby from the breast. Still the normal stools of the breast fed are highly acid and frequently very soft or even watery.

In the early days of my own experience fatal diarrheas of the artificially fed were extremely



common. It was then unwritten law to accuse the diet. So great was the fear of such diarrheas that any type of feeding which would lead to a constipated stool was considered a godsend by pediatricians in that it might prevent these fatal diarrheas. The great scientific weakness of this whole feeding system was that the investigators of nutritional disturbance assumed that the diarrheal stools of the artificially fed were highly acid and hence blamed the acid. They had not as yet learned the true cause of infant diarrhea.

In these last decades we have ruled out intestinal infection by providing wholesome milk. Infantile diarrhea is now considered almost always the result of parenteral infection such as coughs and colds, and in occasional cases the result of nervous excitement from unfavorable household environment. Under all such conditions increased peristalsis sweeps out the intestinal contents whatever it may be. Any acids found in the stools have to a large extent been neutralized. The diarrhea basically is certainly independent of the carbohydrate in the diet, and even of the diet itself unless it should be a secondary reaction in a child already suffering from nutritional disturbance. And in these days severe malnutrition is rare. The fact that babies on lactose feedings often had watery stools and diarrhea was misconstrued. According to my interpretation, increased peristalsis from a parenteral infection sweeps out the intestinal contents. On properly balanced lactose mixtures as with breast milk, the intestinal contents is soft and acid. Hence the stools. These stools are effect and not cause.

In only one type of case does lactose *per se* cause diarrhea. If a baby on a feeding leading to a predominantly colon bacillus flora is suddenly changed to lactose, the growth of the colon bacilli is tremendously stimulated with the resulting production of much gas and metabolic products. Clinically the infant may show indigestion and diarrhea. As indicated above, in our experiments it seems to take a minimum of two weeks for a transformation of the flora to the acidophilus type. In the past we have not realized this and have hastily changed the formula again. With a little patience and no change in diet, the disturbance is soon over and the stools assume the characteristics of the breast fed. On the other hand, had we started the new-born with a

formula leading to real intestinal acidity no such complication would have developed.

It seems to me that in the past our error has been to use too low rather than too high a percentage of lactose in the formula.

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## HIGH VOLTAGE (200 KV) VERSUS SUPER-VOLTAGE (500 KV) X-RAY TREATMENT OF CARCINOMA

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Because of the present day confusion of ideas and opinions concerning the relative value of high voltage x-ray therapy (x-rays generated at 200 KV) as compared with super-voltage x-ray therapy (x-rays generated at 500 to 800 KV) a discussion of this topic by those of us interested in the radiation treatment of cancer is indeed timely. Because super-voltage has been used in the treatment of human disease such a very short time (less than three years) and because we all recognize the importance of evaluating the success or failure of any method of cancer therapy on the basis of five-year cures it is my opinion and belief that much more experimental and clinical proof should be presented and several years at least should elapse before general hospitals and private practitioners rush into this new departure that demands such large expenditures of money. It is possible that in the expenditures of these large sums of money for buildings and apparatus those responsible for such expenditures will have their views more or less biased in order to justify the expenditure—either to themselves or to a hospital board of directors.

It is not my purpose to belittle the efforts now being made by the several research institutes at present studying this question intensively but to warn against too hasty conclusions drawn from insufficient experimental and clinical evidence, to warn against the too hasty expenditure of large sums of your own and other people's money and to point out that many of the advantages of super-voltage can be procured at practically no cost.

In the first place, what is the relative importance of wave length; are the biological effects of

x-rays produced at 200 KV any different from those produced at 700 KV, or are they any different from the biological effects produced by radium? The burden of proof in answering this question rests entirely upon the advocates of super-voltage since all the evidence presented to date indicates that there is no difference.

Packard<sup>1</sup> says: "From these data it is clear that when the doses are equal the magnitude of the biologic effect is also equal regardless of the wave length within these very wide limits. There is no evidence that any part of the spectrum is more or less effective than any other part. And since this is true of these various eggs, seeds, and tumor tissues the conclusion may be drawn that it is also true for cells comprising tissues."

In a symposium on this subject presented before the American Society of Roentgenology in Detroit in 1932 these findings are confirmed by Henshaw and Francis,<sup>2</sup> who state: "The greatest difference in effect obtained in a very favorable test (widely different types of biological responses as criteria of effects, widely different test objects, and widely different qualities of radiation) was 32%. From this, then, it appears that the quality factor is not very important. Since the difference is little beyond that which must be accepted as experimental variation, these results, taken alone, do not prove that differential biological effects are caused by different qualities of radiation."

Duffy<sup>3</sup> reporting on the effects of these different wave lengths on the threshold erythema could show no qualitative differences in this biologic test on human tissues.

McNattin,<sup>4</sup> treating cancer of the throat and larynx with 200 KV and gamma rays found the immediate biological effects—epidermitis and epithelitis practically the same if comparable doses were used. There was, however, considerable difference in the *late* effects—the skin was found to be much softer and more pliable after the radium than after the 200 KV x-rays were used. The time was too short to judge the late effects following 700 KV x-rays.

These effects on the skin reported by McNattin differ from those I observed in Coutard's Clinic in Paris. Coutard's effects on the skin following x-ray were the same as found following radium. It must be remembered, however, that Coutard used a greater distance (80 cm. as compared to

50 cm.), more filtration (3 mm. cu. as compared to .5 mm. cu.), less dosage per day and a longer period of time for administering the total dose—he practically reproduces the conditions used in treating with the 4 gm. radium pack. Within certain limits time and intensity are far more important than wave length.

Failla<sup>5</sup> does not feel that because drosophila eggs and wheat seedlings show no differences, that we can conclude there is no differences dependent on wave length to be found in the human body. He calls attention to the variation in erythema in human skin due to variations in wave length. These variations can be explained on the basis of back scattering as well as by differential effect due to wave length.

In spite of no conclusive evidence he concludes:

"In either case the practical result is that quality of radiation per se very probably plays an important part in radiation therapy. The clinical impressions of those who have had much experience with the use of roentgen rays and gamma rays make this probability almost a certainty."

"The experiments with 700 KV x-ray show that the behavior of this quality of radiation is intermediate between that of 200 KV and gamma rays. Hence better clinical results may be expected from the use of very high voltage x-rays on two grounds:

1. Because of greater depth dose possible.
2. Because of probably greater differential action on tissues of the human body, whether direct or indirect."

His first contention (improved depth dose) can be solved without cost by using greater distance. His second contention is not proved—Coutard's late skin effects with 200 KV x-rays are the same as those with radium.

Furthermore, Mattick<sup>6</sup> of the New York State Institute for Study of Malignant Disease, reported in December, 1932, that using x-ray generated at 200 KV and a filter of 3 mm. cu. and 80 mm. distance and protracted periods of time (daily treatments of 300 R for two or three weeks) his results in fifty-two cases of advanced carcinoma "were as favorable as those obtained from the 4 gm. teleradium pack."

Thus the evidence at hand would indicate that there is no specific wave length effect on tissue and before succumbing to the pressure exerted



by super-high voltage representatives of x-ray manufacturers looking for ten, twenty and fifty thousand dollar orders let me indicate to you a method of getting practically all of the advantages of super-voltage or even the 4 gm. radium pack without this additional investment.

If there is no specific wave length effect on tissue, then the only advantage of increased voltage is increased depth dose.

In a recent paper, Landauer has shown that from a strictly physical standpoint, the higher the voltage and the greater the filter, the greater will be the depth dose of radiation absorbed at a given part below the surface. On the basis, then, of requiring the greatest possible dosage to a tumor, the highest possible voltage and filter should be used. On this reasoning, a million, two million or ten million volts should be better than five hundred thousand or two hundred thousand. However, there are other factors than the purely physical, which enter into the problem, and it is my purpose in this paper to evaluate these other factors, correlate them with the voltage factor and attempt to present a logical technique.

Careful measurements show that increase in depth dose with increased voltage, proceeds at a snail's pace as the voltage rises above two hundred thousand. The cost of equipment and installation, on the other hand, increases rapidly with increased voltage over two hundred thousand volts. The question is whether the slight increase in depth dose is economically worth the greater cost. If there were no other way to increase depth dose than by increasing voltage the cost might well be justified. However, there are two means at our disposal which cost us nothing. One of these is by increasing filter thickness, or using a more efficient filter than copper, and the other is by increasing the target-skin distance.

Increasing the filter can be of value only to a certain point, beyond which intensity is decreased without producing greater depth dose. This point is reached when the filter is sufficiently thick to produce a practically homogeneous beam. Robert Thoraues, physicist at the Radium Hemmet in Stockhold, has devised a filter which is more efficient than copper. It is composed of tin, copper and aluminum in the proportion of 0.4 mm. tin to 0.25 mm. copper

to 0.1 mm. aluminum. The filter I have used for several years is an adaptation of the original Thoraues filter. Its intensity transmission is equivalent to that of 1 mm. of copper, while its quality transmission is equivalent to that of about 2 mm. of copper. In other words, while it gives a filtration effect of 2 mm. of copper it reduces the quantity of radiation only as much as 1 mm. of copper and raises the depth dose at 50 cm. distance from 42% to 48%. The cost of one of these filters is about \$4.00.

Using this Thoraues filter, with a Villard Circuit Machine, at 200 P. K. V., 50 cm. target-skin distance and an area of 20 cm. by 20 cm., I can get a depth dose in a rice phantom of 48.1%. On the basis of measurements made recently on a four hundred thousand volt Villard Circuit machine, an increase of voltage from 200,000 to 380,000 would increase this depth dose by about three per cent., at a cost of more than \$10,000.00, surely a pitifully small amount, when the cost is considered. In addition to increasing depth dose with inexpensive filters it can be improved markedly by using greater distance. Measurements made on the 200,000 Villard Circuit machine show the following relation between depth dose and target skin distance:

Distance in Centimeters	% Depth Dose at 10 cm.
43	43
50	48.1
60	50.1
70	53.0
80	55.7
100	59.0

Here then, is an increase due to distance which overshadows the increase due to voltage—at no monetary cost. There is a cost, however, and that is the cost in time. Our data show that at 70 cm. with two hundred thousand volts we will get about the same depth dose as at 50 cm. with 380 thousand volts. Let us see the relative time required to give the same skin dose. With 200,000 volts, Thoraues filter, 7 milliamperes (well within the rating of the ordinary air-cooled deep therapy tube) 70 cm. distance the x-ray machine delivered 7.15 "r" per minute as measured in air. With the 400,000 volt machine, at a 50 cm. distance, 2 mm. copper filter, 3 milliamperes (same depth dose as on other machine) 32.0 "r" per minute were delivered. Obviously then, the higher voltage machine is decidedly advantageous from the standpoint of time. In other words, we can get as good a depth dose with the two

hundred thousand volt machine at 70 cm. as we can with the four hundred thousand at 50 cm., but it will take approximately four times as long to deliver the dose. However, it is not necessary to go to 400,000 volt to get output as great as 32 "r" per minute under the conditions mentioned above. The modern 200,000 volt machine when operating an oil cooled deep therapy tube at 30 milliamperes will deliver on the above basis 32 "r" per minute. The cost of the 30 M. A. oil cooled tube and the necessary oil circulating system is in the neighborhood of a thousand dollars. The physical measurements, however, do not tell the whole story.

In 1910 Regaud began the long series of investigations, not yet completed, which have proven that the time rate of application of radiation (gamma rays) plays a very important role in producing the biological effect. For example, it is now generally accepted that 200 mg. of radium for twenty-four hours (4800 mg. hours) in the uterine cervix, will not give as good a clinical result as 30 mg. of radium in the cervix for six days (4320 mg. hours). Coutard has proven this same biologic time effect for x-rays. He has shown that not only high fractionation (about 200 "r" per day) but low "r" per minute (not to exceed 3 "r" per minute) produces the better biological effects than the German massive dose technique. If we accept this principle as valid, then the use of super-high voltage machines with higher output (as compared to the 200 K. V. P. machine) is not only no advantage, but is actually wrong. This high output of 32 "r" per minute which the high voltage machine gives is too massive. Coutard uses not over 3 "r" per minute and 200 "r" per day. This means a treatment time of sixty-six minute per patient per day; in the average hospital or private office having only one deep therapy machine, this would mean a limit of about eight patients per day, and since the treatment is repeated daily for several weeks, it is obvious that such a schedule would be economically unsound. However, if we double the "r" rate to 6 "r" per minute, this would mean approximately thirty minutes per patient and if the equipment is so arranged as to permit the treatment of two patients at a time, thirty-two patients per day could be treated—an entirely practical arrangement. We must conclude, that unless we have a multiplicity of machines (Coutard

has eight, with two treatment couches per machine) we cannot follow the Coutard method exactly—but we can, however, by modifying it slightly, have an economically sound method—with no need whatsoever for using voltage in excess of 200,000 and get all the proven advantages of the super-voltage machine—homogenous radiation, short wave length and increased depth dose.

Conclusion: It is not my purpose in this paper to belittle the excellent research work being done with higher voltages; there are some very excellent clinical observers who have some very convincing "impressions" concerning the value of super voltage but conclusive biologic proof of these impressions, however, is still lacking. Until the value of these extremely expensive machines has been clearly demonstrated by the few research institutes in this country qualified and equipped to make careful biological studies I wish to point out that much of the improvement claimed for super-voltage is available at 200 kilovolts at little or no expense.

#### DISCUSSION

Dr. Robert A. Arens, Chicago, Ill.: Doctor Pettit has presented an excellent and a very timely paper. During the past winter it was my good fortune to be able to investigate the question of ultra high voltage therapy. While I cannot agree with everything that Doctor Pettit has said, in the main I do. He has covered a very wide field and given very careful consideration to the work as it lies before us today.

In discussing this paper, I would like to take it up from just two viewpoints. First, with regard to the use of high voltage. Ultra high voltage offers us one thing which we are unable to get in any other way, namely, the use of higher filtration. There is no question about the fact that as we go from the lightest of filters up to the heavier filters, our results are not only better and better, but with the use of higher filtration we no longer have to fear the results of moderate over-dosage, or what formerly used to be considered an over-dose. With the increase in voltage and filtration, we can produce an erythema, or so-called epidermitis, in which the skin finally desquamates, and when the old skin comes off there is a fine, soft, pliable skin underneath, with complete regeneration of the underlying normal structures. The heavier the filtration, the better this reaction takes place, without permanent damage. This is important. It is important because the heavier filtration employed, the heavier the dose that can be given with safety to the superficial structures.

In discussing the use of two hundred thousand volts or over, we must consider this from the standpoint of type of current. Two hundred thousand volts no longer means anything, for it must be stated whether



it is pulsating, rectified or constant potential. Since the constant potential is basic, my own feeling is that all voltage values should be expressed in this term.

The increase in intensity, one of the arguments for higher voltage, is of comparative insignificance except in relation to heavier filtration, and this is of no consideration, providing we have sufficient equipment and time to give the dose we desire, regardless of the "r" rate.

I cannot agree that we should not go over two hundred thousand volts, and feel very definitely that we are not taking full advantage of the voltages available at this time, although how high to go I would not care to state at the present moment. If you consider the curve of increased efficiency from 140 P.K.V. to 200 P.K.V., you will find the curve rises very steeply. As we go above 200 P.K.V., up to the present time we do not know whether the curve continues to advance very steeply upward or only moderately. I personally feel that somewhere in the vicinity of 400 thousand constant potential, or its equivalent, is about all that will be required.

One must also bear in mind that the installation of ultra high voltage equipment is expensive and the overhead proportional. That brings me to the second point, namely, the application of radiation and those who receive this radiation.

When we have a modality that is so expensive that only the very wealthy can take advantage of it, we are not serving our function to humanity. We must have something that Mr. and Mrs. Average Citizen can take advantage of, and it behooves us to keep our expenses down to the absolute minimum. We must provide service for those people who require it, regardless of finances.

Dr. Walter G. Bain, Springfield, Ill.: Dr. Pettit did me the courtesy of sending me a copy of his paper before the meeting, and I had a chance to go over it very carefully. I certainly feel that his paper is excellent and is of a lot of value to us fellows who are not in a position to make an investment in one of these new machines.

It surely is a source of relief to think that we do not have to be put in the position of feeling that we have antiquated methods of treatment and are obliged to make a large investment. So this suggestion of Dr. Pettit's of our being able to extend the efficiency of our machines by increasing our distance and filtering it, is a very valuable one. Hardly any of us at the present time, probably, are using our equipment to the maximum, from the standpoint of time, and we therefore will be able to meet this situation fairly well.

I feel that the Doctor, in his paper, has covered the matter of recent literature on this and the recent knowledge pretty well, certainly so far as my interest in the matter and my reading is concerned, and I want to express my appreciation of this suggestion.

I would like to ask the Doctor, when he closes the discussion, as to whether we can get the type of filter that he mentions.

Dr. Max Cutler, Chicago, Ill.: First I want to

congratulate Dr. Pettit upon his very clear and comprehensive presentation of this difficult subject. With very few exceptions I subscribe to the point of view which Dr. Pettit presents.

The speaker favors the view that there is no difference in the biological effects of x-rays and radium. I am sure he will agree with me that one can gather an equally formidable body of evidence favoring either view. The great difference of opinion which exists upon this problem merely proves that the evidence at hand does not justify the conclusion, and personally I am unwilling to commit myself in this question.

The suggestion that 200 k.v. x-ray therapy is as effective as the higher voltages and as effective as the radium packs again leads us into a field of uncertainty. Certainly there is much evidence to indicate that definite advantages may be gained from the use of very high voltages and four-gram radium packs. However, I quietly agree with Dr. Pettit that these problems should be investigated in the larger centers where there are available highly trained personnel, adequate equipment, and elaborate organization. While these investigations are taking place, it seems wise for radiotherapists to adhere to 200 k.v. x-ray therapy. These advantages Dr. Pettit has clearly described. It might also be well to await the results of the high voltages before installing equipment of intermediate voltage, and I would definitely advise those radiologists and institutions who are working with 200 k.v. equipment, if possible, to await the observations and results of the next two or three years before considering a change in their equipment. We are at the present time in a definitely transitional period and the evidence does not permit a conclusion upon these various factors which determine the nature of our apparatus. In view of this general circumstance it is wise, wherever possible, to delay and defer the installation of new equipment until such time as we are more in agreement and are more certain as to the merits of the various therapeutic agents which we employ.

Far more important than the caliber of our equipment is the efficiency with which we use our equipment at hand, and it seems to me more logical and certainly more profitable to devote time, energy and expense to the acquisition of knowledge and understanding concerning the principles of radiation and the newer methods rather than too much consideration to the matter of voltage at this time.

Dr. Roswell T. Pettit, Ottawa (closing): With regard to Dr. Arens' discussion of the paper about the thickness of the filter and the skin effect, comparing this higher filter of 3 millimeters of copper, with one-half millimeter of copper, there is no question that the skin effects are decidedly different.

In 1928 I had the pleasure of visiting the Radiumhemmet in Stockholm. Dr. Bervan, the director of the work, said that x-rays were no good in metastatic glands of the neck, and he uses radium entirely.

In 1933, I visited Coutard's clinic in Paris for about two months. I saw patients treated with 3 millimeters of copper filter and as compared with the platinum

filter that Bervan used, the skin effects, in so far as I could tell by seeing and feeling of the skin in these patients, both in Stockholm and in Paris the skin effects were identically the same.

There is a question in my mind, Dr. Arens, as to how high you need to go in the way of a filter.

The Thoraeus filter, Dr. Bain, can be procured from Dr. Landauer of Highland Park, who makes them and sells them for four dollars a piece.

Of course, I know Dr. Cutler's profound knowledge of this subject, and I know that he has spent so much time in the study of the biological effects of radiation. I am glad he confirms me in my opinion that we do not want to rush headlong into higher voltage.

We have three or four or five institutes in this country that are well qualified to study this problem, and until they have arrived at some definite conclusions and have presented some positive proof, I do not think we need to scrap our 200 kilovolt apparatus. What we really do need is to study our cases and use our apparatus that we now have available, more efficiently.

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#### FUNDAMENTALS OF INFANT FEEDING

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*Introduction.*—In the past thirty years so much has been written on infant feeding that one fundamental fact has been largely overlooked, and that is, that for the vast majority of infants breast feeding is to be preferred. In a survey not yet published, which covered 20,000 babies taken care of by the Infant Welfare Society of Chicago in the years 1925 to 1929, inclusive, over 91 per cent. of the babies were either wholly, or partially, breast fed, leaving somewhat over 8 per cent. to be artificially fed. While this percentage of breast feeding is probably much in excess of what takes place among those better off financially, this is probably in a large measure, the result not of inability to nurse so much as a lack of desire on the part of the mother and failure on the part of the physician

to emphasize the importance of breast feeding. Another factor in the situation has been the widespread propaganda with the use of various kinds of artificial foods. One never picks up a magazine nor turns on the radio that he does not hear propaganda of one sort or another with respect to these. If it is not some specially patented food then it is some specially elaborated milk which proclaims that a quart of milk a day is necessary for the health of the individual. All these and many more factors have entered into the situation, so that now one is regarded as rather old-fashioned if he attempts to persuade a mother that for her own sake and for the good of the baby nursing it is by long odds the best choice. The answer to this general proposition is always that for some reason or other it is better to take the child off the breast. We must, however, always be careful to hold before ourselves the fundamental fact that breast milk is the food for infants and that any fabricated food, no matter how effective, is a comparatively poor substitute. It is quite true that some mothers cannot nurse their babies, but one wonders how often this is due to the fact that they have not had sufficient encouragement on the part of their physicians.

*Breast Feeding.*—Let us now take up the subject of breast feeding. If, as I have already stated, it is of prime importance that the child should be kept on the breast then there must be a duty on the part of every physician to see that this situation is properly emphasized in the newborn period. If the newly born infant is not kept on the breast and the breast properly developed by it, then, of course, breast feeding is out of the question. Therefore, the most important period for the influence of breast feeding is unquestionably that of the first two weeks. This idea has apparently been lost sight of in recent efforts to complement or substitute in order to do away with the initial loss of weight. When we consider that the initial loss of weight consists largely of excreta, we must realize that its importance has been greatly exaggerated. We must also realize that when a child is not hungry it will not work for its food. It is true that if the child is too hungry, or be somewhat debilitated or weak as a result of hunger then it will not exercise its ability to develop the flow of breast milk by nursing vigorously. It is, therefore, of the greatest importance that the individual phy-



sician shall exercise in the individual case proper care in the supervision of the nursing of the newborn in order that the infant in question may have the benefit of breast milk for its food.

There are many factors which influence the flow of breast milk. In some individuals the glandular tissue is entirely replaced by fat. In others, it is deficient. Again the number of lactiferous ducts may be so few that it is extremely hard for the baby to get the proper amount of breast milk, or the nipples may be inverted or flat and this too may have its effect. Aside from the local factors, we have to think of the general diet of the mother. However poor the diet of the mother may be, it is a known fact that she will make a sufficient quantity of milk, though it may be poor, at the expense of her own economy. There are, of course, conditions in the health of the mother which render it impossible for her to nurse properly, but these are comparatively few and not nearly commensurate with the number of instances where they are assigned as the cause of early weaning. On the part of the child strength may be lacking and it may be necessary, especially in premature or congenitally debilitated infants, to hand feed them for a certain length of time. However, during this period one should keep up the flow of the breast milk by means of one of the pumps, either a hand or suction pump, or Abt's electric pump. Rare indeed is the child who is unable from the very start to coordinate his movements in such a way as to produce suckling.

There are, however, other factors which enter into this situation and are probably more potent because of insufficient supply of breast milk. I speak of the psychologic side of breast feeding. This is often shown where the mother comes home from the hospital without a nurse, with things in a turmoil, with the result that the quantity of breast milk which has been sufficient for the child's needs up to this time suddenly decreases. It is worries of this type that seem to make a great deal of difference with the flow of breast milk. Poverty is not such a strong factor. In fact, I have often found that among the poorer people in our communities breast milk is more likely to be utilized. The attitude of the mother makes a difference. She frequently feels that "her style is being cramped" by the fact that she has to nurse her baby, that her social life is being curtailed and perhaps that

she cannot give as much attention to her husband as she would like to. Or perhaps there is a mother-in-law in the situation, or a grandmother, who tries to stamp her ideas on the mother of the child. All these factors enter into the question of breast nursing, but perhaps the chief psychologic factor is, strange as it may seem, the idea which has permeated the lay mind, that a child can be brought up just as successfully on artificial food as on breast milk. They see only the subcutaneous fat and the weight curve. They do not see those imponderables which are of far greater importance for the health of their babies than is any amount of adiposity or any strict adherence to an artificially prepared weight curve.

Many of these factors may be taken into consideration by the physician if he is to keep the baby on the breast and many are the physicians who will fall by the wayside in their idealism when they come up against the questions and petulance of young mothers. With these things in mind, it is palpably impossible to lay down hard and fast rules as to how a mother shall nurse a baby. Some will say that it does not make any difference whether she nurses it at regular intervals for a regular length of time and that the child will thrive either because of or in spite of this. There is just enough truth in these statements to make them false. In other words, there may be an occasional child who will do well on such a regime, but the fundamental fact remains both from a physiologic and a psychologic standpoint, that the child is best trained by regularity and that primarily this regularity as to time and length of nursing is the first of those disciplines to which the child is subjected. From many standpoints the longer the interval between nursing, within limits, the better it is for the child and for the mother. It gives the infant's stomach a period of rest, it makes the infant hungry so that it is eager to take the breast and it gives the breast time to refill. It allows the mother time when she may seek recreation and if possible get away from the cares of the child; an all important factor. It is for these reasons that I prefer a four hour interval to a shorter one. There are many exceptions unquestionably and these exceptions are to be determined in the individual case by the physician in charge.

As to the length of time that the child shall nurse, this depends altogether upon the ease with

which the child obtains its full supply of milk. Some mothers have sufficient milk to supply two or three children; others have barely enough for their own. Many others have not even that much. The only way I know to find out how much the child gets from the breast is to weigh it before and after nursing. I wonder how often in the maternity wards of our hospitals this is done. I have an impression that in only comparatively few hospitals is the newly born infant given enough care to determine how much it gets from the breast. I think that the number of cases is perceptibly fewer where the attending physician carefully supervises the feeding during the first two weeks. The ideal time of weaning has been pretty well determined at about nine months. Previous to this time of course the child should be given an occasional bottle or a feeding of cereal or vegetable. It is well especially during the winter months to add cod liver oil and orange juice in small quantities.

I want again to lay stress before leaving the subject of breast feeding on the importance of this for the child. I would anticipate a future communication to this extent that I would state unqualifiably that in a survey of a large number of cases deaths among purely artificially fed infants were twenty or thirty times as great as in the breast fed and that throughout infection was more frequent and unquestionably more severe. If an artificial food nourishes the infant without giving it those unknown substances which protect it against infection then an artificial food is by no means the food of choice.

*Artificial Feeding.* To take up the question of artificial feeding is much simpler but first we should present certain difficulties. The first difficulty which we encounter and which every pediatrician knows is the one which presents itself in the newly born. It is extremely hard in many instances to arrange a proper formula to meet even the superficial needs of the newly-born infant. After the newborn period and as the child gets older the task is simpler. Feeding artificially from a purely nutritional standpoint is comparatively easy. It requires no vast degree of genius to prepare such food for a child that it will thrive and go along. Nature has so built up the human organism that the tolerance for food both as to quality and quantity is very great in these infants. If it were not so,

many of us would not be alive today. The whole question of artificial feeding has been displayed in flaming head lines before the laity and the profession for so many years that when one speaks of a simple formula as being sufficient for the care of the infant, one is frequently looked upon as an old fogey. The fact still remains that probably at least ninety per cent. of those babies who are to be fed artificially can be fed on the simplest of formulae—formulae which the general practitioner would have no difficulty in preparing. They require no intimate knowledge of infant nutrition nor any far-flung ideas regarding the finer technicalities of the preparation of infant foods. A simple formula consisting of boiled milk, water and cane sugar to which are added in time orange juice, then cod liver oil, then cereal and vegetable, will meet the needs of probably nine-tenths of the children from a purely nutritional standpoint and the essential elements of a complete food are satisfied. As already indicated this may not hold true in newlyborns, but even with some of these one can get results with such formulae.

The issue has been clouded by various investigations which have shown that under certain circumstances food preparations harder to prepare and less easily used, were necessary and advisable. They have also been clouded by the fact that proprietary infant food manufacturers have cried their wares to the medical profession and I feel that the medical profession has not distinguished the child who needed such special care from the one who did not. I know of no publication which has shown any scientific approach to the comparative values of infant foods. It would only be by comparison of many hundreds of babies on different formulae that one could arrive at any definite conclusion. We may argue as much as we please as to the presumable advantage of this or that form of food on the basis of test tube and animal experimentation, but after all is said and done proof has to be obtained from the effect upon the child. Such proof is not a matter of impression, nor is it a matter of a study of a hundred or two hundred babies without controls.

If I am to be held more strictly to the formula which I would advise, I would say that the total quantity of food would be slightly more than the estimated stomach capacity times the number of feedings; as for example, a baby at



three months of age has a stomach capacity of  $4\frac{1}{2}$  ozs. I would give the baby at that age approximately five feedings of 5 ozs. each. As to the quantity of milk, this depends to a certain extent upon the fat content. The amount will vary from  $1\frac{1}{2}$ -2 ozs. per pound weight in 24 hours. If to this is added an ounce of cane sugar in 24 hours and water to make up the quantity and the whole boiled or three minutes (both for the purpose of killing bacteria and also in order to reduce the size of the casein curd in the stomach) then I think that in most instances all one needs to do is to add a sufficient quantity of cod liver oil and orange juice and as the child gets somewhat older cereals and then vegetables. All the elements of the food are there. They are present in a palatable and readily assimilable form and will meet the needs of the infant in the vast majority of instances. I hear someone say that condensed milk is the thing that he has fed his babies; another one that he has used evaporated milk; someone else buttermilk and Karo corn syrup; someone else S.M.A. and someone else albumin milk; someone else one of the various sugar or cereal mixtures mixed with milk and each one says that his is the best. This empiricism reminds me of the old practitioners of medicine when each doctor had his own pet remedy which he varied slightly from case to case and was quite sure that this remedy was the one thing which got results. I wonder how many of us realize that most of the results we get in artificial feeding of infants are due to the psychological effect upon the mother and the confidence which she puts in us and also how she depends on us to allay her fears. One New England pediatrician, I think, has expressed it best when he said that he knew whether he was able to feed a baby when the mother walked into the office.

In the artificial feeding of infants, I would only say this that a simple formula will do the work, that if you prefer a more complicated one that is your privilege, but be sure that the mixtures which you advise are at least complete in their constituents, as are the more simple formulae with which we usually get results.

Just a few words in conclusion. Breast feeding is by long odds the thing to be desired. The newborn period is often the period during which it is determined whether or not the child shall be kept on the breast. Breast feeding should

be as carefully supervised as artificial feeding, though oftentimes it is not necessary. Where it is necessary to put a child on the bottle a simple formula will work in the vast majority of instances. There is no objection whatever to the use of special preparations provided the man who uses them knows how to use them. There is, however, very definite objection to the claim that these preparations are any better than other preparations simply because of experiments of one kind or another, for the usefulness of such preparations is not to be judged by animal experimentation nor by test tube results and finally as in every other situation which confronts the physician, the final test is his judgment in the given case. No hard and fast rules can be set down for us, only guide posts to indicate which way to go. It is just as true in feeding the baby as it is in tending to a case of cardiac failure that attention to details and the judgment of the individual physician must in the end prevail.

#### DISCUSSION

Dr. Ray Armstrong (Champaign): One rather hesitates, especially at my age, to discuss a paper which has been prepared by a man of the experience Dr. Grulee has had.

There is one thing I would like to emphasize very much, though. That is, especially, the duty of each physician to emphasize the fact that a baby should be put on the breast if it is at all possible. There is no question at all but what an especially young baby gets quite a bit of substance, you might call it, or immunizing qualities from the breast milk that they do not get from artificial feeding.

We found that especially true in our community recently in an epidemic of measles. The breast fed babies who do get the measles are usually lighter cases, and in a good many cases of the very young ones they pass it up entirely.

Another thing which Dr. Grulee did not emphasize, which I think should be, is the test for breast milk. You find a good many men who routinely will take a sample of the milk to a laboratory and have it tested. Oftentimes you will find this test is absolutely worthless because your best test is really the baby—how the baby reacts to it.

Along the lines of artificial feeding we get quite a variety—everywhere from sauerkraut juice up to some of the very high grade, or highly tested ones. These babies, as Dr. Grulee says, get along oftentimes in spite of what they have been fed.

I was quite interested in the statistics of all those cases. As a rule we see more cases in private practice than we do in hospitals, in our communities. I wondered what the percentage was in private practice so far as breast fed is concerned.

A good many men take their cases right from the

start, and we usually see them two or three weeks afterwards, or, when some trouble comes up, and at that time of course, the breast feeding has been done away with entirely.

There is another question I would like to ask. Do you feel that when a child is taken from the breast and put on the bottle that those constitute a good many of the cases we find later with some allergic condition?

Dr. Grulee: I have exactly the same impression Dr. Armstrong has regarding the question of children being fed at the breast in private practice. I think there are many more put on artificial food than should be.

I have another impression and I have some background for that. We have at the Presbyterian Hospital an out patient, new born service on which we are keeping records, and I have not the final figures but for the same class of patients I am inclined to think that more cared for in the hospital leave it on complementary feedings than do those in the district that are born in the homes at time of dismissal. I think that is largely due to the attitude of the nurse who looks at the weight curve, holds up her hands in holy horror and immediately tries to have something more given to the child.

As to the second question, I do not know much about allergy. Some years ago Dr. Bonar and I examined the urines of children with the idea of finding foreign proteins. At the time, we found that breast fed babies, babies who were entirely on breast milk, gave, once in a while, a reaction to egg albumin or to beef albumin. At the time we thought this was probably an error in technic. Since then, I am inclined to think that we cannot be sure materials of that nature do not go all the way through mothers' breast milk and into the excreta of the child.

You have all had the experience of a nursing mother on a diet rich in egg. Maybe your child has a reaction to egg which can be definitely controlled by taking the mother off the egg diet. I have had that experience. Perhaps this is an example of allergy. I am not so sure but that the breast milk, by being more or less a perfect food, and, therefore, more easily absorbable from the intestinal tract, may not be just as good a carrier of allergic material as is the artificial food.

## THE TREATMENT OF FRACTURES OF THE LOWER LIMB BY FIXED TRACTION

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The treatment of fractures of the lower limb is more or less of a bugbear to the rank and file of practitioners. This is true because the usual method of treatment is time consuming, requires too much supervision along with worry, and because the end result is not uniformly

good. The modern demand in the treatment of fractures both by the profession and the public is for correct anatomical position and recovery with a maximum of function with the least deformity and disability. To meet this demand with present methods requires long hospitalization, frequent x-ray pictures, and necessitates constant supervision. The requirements for the treatment of fractures are reduction, immobilization, and traction. Success depends upon our ability to obtain and maintain correct length, position, and immobilization of the bone fragments and the soft tissues. The principal factor that interferes with success is muscle spasm, and muscle spasm is the result of inadequate immobilization. If we fail to obtain length and position, there will be muscle spasm, pain, and frequently failure to get a good result. If we get good reduction of the fracture and immobilization is inadequate, there also will be muscle spasm, pain and frequently a poor result. Present methods fail in one or the other requirement in that if correct length is obtained after much experimentation with various weights (for no one knows exactly the weight required to overcome the shortening) position and immobilization of the bone fragments are not adequately maintained. As a result of poor immobilization and uncertain traction, it is not uncommon to find the patient's food inverted, everted, or against the end of the bed with the weights resting on the floor with no traction on the fractured limb. This constant tug-of-war between the muscles and weights with more or less motion of the fragments results frequently in deformity because of mal-union as well as non-union and often in open operation.

Direct skeletal traction by means of pins or calipers as commonly used is condemned by some men, and justly, because both calipers and pins with weights attached over a pulley cause a great amount of irritation and even bone necrosis, and pins in the os calsis have cut through to be held only by the plantar fascia. This is not surprising when one considers the sawing effect produced by the movement of the patient in a Thomas splint dragging twenty-five pounds of weight or more back and forth. Wear and tear of the bone is necessarily the result and occasionally osteomyelitis ensues. Too frequently bad results are obtained because both skin traction or direct skeletal traction either fail to reduce the



fracture, fail to immobilize the fracture adequately, or fail in the maintenance of constant, uniform traction. A final shortcoming is an economical one because of the necessity of prolonged hospitalization. It was because of these shortcomings in present methods that a better and simpler method was sought to give better control of the fracture. The method that overcomes the disadvantages pointed out is that of fixed traction as devised by Dr. Orr of Nebraska. By means of this method a fracture of the femur or both bones of the leg can be reduced, traction applied and immobilization secured with one to two hours, thus accomplishing with certainty that which frequently is not accomplished in from one to two weeks.

By fixed traction is meant traction that is so applied when the fracture is reduced and so immobilized or fixed in the immobilizing apparatus that it and the fractured extremity remain undisturbed and unaltered until at least preliminary healing has taken place. This produces a constant, uniform, undisturbed traction. This is accomplished in the following way:

*Reduction of the Fracture:* The patient is placed upon the fracture table with a padded perineal post against the pubic bones and anesthetized. Both feet are bound to the pulling devices on the table and traction applied by turning the screws of the foot pieces until both legs are of equal length by measurement. With sufficient pull on the fractured limb, shortening is overcome and the fragments tend to fall into anatomical alignment or can be manipulated to do so. In fracture of the shaft of the femur sometimes the lower fragment tends to tilt posteriorly due to the pull of the gastrocnemius. This is overcome by a sling under the fragment which pulls it up into position and slightly flexes the knee. This means of reduction, we believe, tends to lessen greatly the interposition of soft tissue, because when length is obtained, the muscle tissue being elastic and contractile tends to automatically release itself, thus preventing to a great degree the possibility of non-union. The soft tissues as well as the bone being restored to their anatomical position, nerve impulse and circulation are re-established and swelling rapidly subsides and does not recur. While trauma causes swelling, we believe that by far the greatest amount of swelling and pain is due to distortion of blood vessels and nerves.

The next step is to apply moleskin adhesive straps to both sides of the limb extending to just above the fracture site. The straps are three inches wide and have the frayed end of a soft pliable rope sewn into one end and vary in length accordingly for fracture of the femur or the leg. The rope extensions are tied to the foot piece of the pulling device and a three inch bandage is applied snugly but not tightly to keep the moleskin in good contact with the skin.

*Immobilization and Traction:* By immobilization is meant splinting which permits the least possible movement of the fragments thereby preventing pain which causes muscle spasm, which in turn causes malposition and frequently deformity and disability. To obtain such immobilization after reduction of a fracture of the femur, a body spica plaster of Paris cast is applied down to about a hand's breadth above the ankle joint together with fixed traction. When the cast is hardened sufficiently the rope extensions are untied from the foot piece and knots are made in it about four inches apart. Then the ropes are drawn down as far as possible to take up the stretch of the skin and then folded back upon the sides of the cast together with about two inches of the moleskin adhesive plaster. An assistant keeps the ropes taut against the cast and a plaster bandage is applied to incorporate the ropes in the cast. When this hardens the foot is detached from the pulling device and the traction that was produced by it is now maintained by the moleskin straps and ropes incorporated in the cast, thus preventing kick back of the leg into the cast. The point of counter-traction is the tuberosity of the ischium. The cast is then completed to include the foot in dorsiflexion which prevents rotation of the foot or of the fragments. Thus we have established a true fixed traction, constant and uniform, with relaxation of the muscles which now act as internal splints, as well as restoring the anatomical position of the soft tissue and from then on the patient is free from pain, swelling and discomfort.

Contrary to all teaching the cast is not split and we do not get secondary swelling because, as stated above, the distortion of blood vessels and other soft tissue is corrected, the fragments are in apposition, and the principal cause of swelling has been removed. Within twenty-four or forty-eight hours after reduction and

fixation the cast has become sufficiently hard so that the patient may go home as there is no need for him to remain in the hospital because there is nothing in particular to watch and nothing to adjust. We know his fracture is reduced by means of the roentgenogram; that length and alinement are restored; and that traction is applied and fixed and will remain so until at least early callus formation occurs. In our experience the moleskin straps have not slipped or become detached from the skin even at the end of eight weeks in femur cases. The patient never experiences any pain after reduction and fixation and has much more freedom of movement in bed. It is a great economical saving to have the patient home in two or three days instead of remaining in the hospital for six or eight weeks.

Where it is inadvisable to use moleskin straps for traction because of a short leg surface for its application, as in fractures close to the ankle, a Steinman pin is driven through or over the os calcis or calipers are inserted into the malleoli and incorporated in the cast. When the cast is hard and the traction bandage on the foot piece is released the pin or calipers being incorporated in the cast prevent kick back and produce a true fixed traction. In oblique fractures of both bones of the leg which are difficult to maintain in position occasionally, a second pin can be inserted through the crest of the tibia and incorporated in the cast, thus assuring position and positive fixation and traction. When pins or calipers are used the same surgical cleanliness is required as in abdominal surgery, including rubber gloves. When good surgical technique is followed, the danger of infection is no greater than in any other surgical procedure. Pins or calipers are left in until good union occurs and in our experience we have left pins in the bone for a period up to seventy-two days without irritation, bone necrosis, or discomfort to the patient. The holes heal quickly and scarcely leave a scar.

Again contrary to accepted teaching early passive motion is not practiced in any case of fracture but immediate active motion is instituted by very frequent flexion and extension of the toes and frequent movement of the patella as advocated by Boehler of Vienna.<sup>1</sup> This active motion stimulates circulation and absorption of exudates, prevents swelling, exercises the flexor

and extensor muscles and prevents atrophy to a marked degree. Boehler says, "I must say that I consider massage and passive movements in all recent injuries and disease as being most harmful. Massage and passive motion not only cause pain but also disturb the rest, so necessary for the process of healing."<sup>2</sup> Bier says, "An active muscle draws arterial blood in and propels the venous blood when it contracts. When it remains inactive for a long time the blood supply decreases and the venous blood stagnates, producing the retention of transudates in the extremity. The muscle becomes atrophic and lime salts in the bones decreases."<sup>3</sup> From the above statement it is evident that passive motion is detrimental to healing and may be the cause of non-union. Many surgeons hold that immobilization produces atrophy and stiffness but this does not hold true in our experience. Dr. Albee very definitely says, "Immobilization does not produce permanent atrophy. Many times efficient immobilization, if proper physiotherapy is carried out afterward, will prevent stiffening rather than produce it."<sup>4</sup> Stiffness is due to pathological changes, tissue destruction and scar tissue and these are kept at a minimum not by motion but by rest. Early passive motion increases these changes by producing more irritation which produces more fibrosis with its resulting ankylosis. What little stiffness is present when the cast is removed quickly disappears with a little manipulation.

The method of fixed traction is equally applicable to the treatment of compound fractures and together with the Orr method of treating infected wounds gives immediate relief from pain and gives the patient a chance to get well with the best possible result.<sup>5</sup> The adoption of this method of treating fractures of the lower limb, we feel confident, will eliminate to a very great extent the necessity of plating for non-union and mal-union. Results will be more uniformly good anatomically and functionally, splints of various types can be eliminated and last but not least the method is so simple that the average practitioner can use it with confidence with the expectation of getting better results than are usually obtained by other methods of treatment and with considerably less worry and work.

#### SUMMARY

1. The present methods of treatment of fractures of the lower limb are defective as they do



not adequately meet the requirements and do not give the best results in the hands of the general practitioner.

2. Overcoming the shortening is uncertain, and failure to immobilize effectively as well as inefficient traction are common occurrences.

3. Present methods of direct skeletal traction are frequently damaging to the patient and to the healing process.

4. The application of fixed traction produces immediate reduction of the fracture; maintains a constant uniform traction and immobilizes with no discomfort to the patient.

5. Direct skeletal traction can be applied without causing bone necrosis or irritation and is positive in its effect.

6. The economy and availability of the plaster cast eliminates an array of appliances.

7. The period of hospitalization is considerably shortened thereby being an economical factor to both patient and doctor.

8. The results are uniformly better.

9. Both patient and doctor have peace of mind. The patient is not tormented by frequent dressings and the doctor is free from worry.

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#### DISCUSSION

Dr. S. H. Easton (Peoria, Ill.): I would like to emphasize what Doctor Papik has said—that, if you have a fracture, reduce in accordance with certain anatomical configurations and maintain that reduction until you have firm bony union. Then you will not need massage or need passive motion, etc. A soft callus is a yielding callus and yielding callus becomes tender under strain. When you try to move these fractures before there is firm bony union, then you are bound to have pain and bound to have edema. As I said, in my paper, I hate edema. If you keep away from that pain and edema by keeping the fracture immobilized until you have got good bony union, then the restoration of function is easy.

I would just like to ask the Doctor one question about the first slide that he showed with a bad dislocation. He said that case walked the next day, if I recall. My own experience with fractures of that type is that there is so much edema, so much hemorrhage, etc., that any time you put a walking cast on a fracture

that bad, you usually have to split it. I would be afraid to let my fracture case walk on a walking-iron until I had a cast on that was tight and holding good and the leg was not swollen. I would like to know how he got away from edema in that case.

Dr. Charles Papik (closing): I think the secret of the whole thing is in getting the fracture early before you get edema. I think that is a very important point and not to wait for swelling to go down, as so many men do. You still see men leave fractures lying in bed for three or four days, waiting for the swelling to go down. If you get these cases in the first couple of hours, there is very little edema. I follow the method of squeezing out the edema present and I put on a non-padded cast and the trick is to put it on so that you do not constrict the leg. I have never had to split a cast, not since I have followed that method. I make these people walk and that maintains circulation and prevents edema. When the fracture is reduced accurately there is no distortion of the blood vessels or nerves, and it is amazing how fast the edema disappears as I pointed out. The blood vessels and lymphatics are straightened out, and the edema disappears rapidly and does not recur.

#### FIND TREATMENT FOR HEART WORMS IN DOGS

Dog owners and veterinarians now have available an effective means of combating heart worm, a parasite that has spread rapidly in recent years from the South to the Atlantic Coast States. Scientists of the U. S. Department of Agriculture have just announced that Fouadin, a complex antimony compound, will kill the worms and the larvae.

Fouadin is known to chemists as sodium-antimony-III-bis-pyrocatechin-disulphonate of sodium. A suitable course of treatment with this drug, the investigators announce, will usually destroy some or all of the adult worms in the heart and pulmonary artery, and will free the blood stream of larvae, thus preventing the infested dog from acting further as a spreader of the parasite to other dogs.

Common symptoms of heart-worm infestation are that the dog tires easily, may gasp, breathe heavily and even collapse. The dog may cough or show nervousness and may have convulsions and other symptoms resembling those of rabies or hydrophobia. Death may result from asphyxia, clogging of blood vessels, and dilation of the heart.

Fouadin affects both the liver and kidneys and should, therefore, be administered only by a competent veterinarian; otherwise the life of the patient may be endangered. In cases of heavy infestations with heart worms the drug should not be given rapidly, in large doses, or at too close intervals since the destruction of considerable numbers of worms at one time may clog the pulmonary artery and result in embolic pneumonia.

Fouadin may be administered either intramuscularly or intravenously depending on the weight and condition of the dog. The former method of injection is preferable for small dogs in which the subcutaneous veins

are small and in large dogs when the physical condition demands more careful control of the dosage than can be obtained by intravenous injections. On the other hand, the intravenous method permits the use of a smaller total dosage and quicker results. Extreme care is essential in treating dogs having chronic or acute disease conditions which might influence the tolerance of the animal to the drug. Although Fouadin did not result in abortion in one pregnant female used in the investigations, it is considered advisable, ordinarily, to withhold treatments during pregnancy.

#### CUT NERVE SHOWS "POLIO" ENTERS BODY THROUGH NOSE

When the olfactory nerve is cut, infantile paralysis fails to develop even after the causative virus of the disease has been placed inside the nostrils of a susceptible monkey.

This fresh evidence that the disease enters the body via the nerve of smell was obtained from investigation carried out by Drs. Maurice Brodie and Arthur R. Elvidge at New York University and Bellevue Medical School and McGill University, Montreal. The experiments are reported in *Science*.

Like other investigators, Drs. Brodie and Elvidge found that monkeys promptly developed the disease when the virus was placed inside the nose or swabbed on the membranes lining the nostrils. Examination of the olfactory nerves of such animals has shown the presence of the virus in the nerve, indicating that this is the route of the virus to the brain. But when the olfactory nerve was cut, the virus apparently could not find its way to the brain, since the monkeys in these cases remained healthy and free from paralysis.—*Science News-Letter*.

#### PARROT FEVER

Nine deaths from parrot fever and twenty-five cases of the disease have caused the U. S. Public Health Service to send Dr. L. F. Badger of the U. S. National Institute of Health to Pittsburgh to investigate the outbreak there. Dr. Badger has been sent at the request of Pittsburgh health authorities.

The outbreak, said to be one of the most severe that has occurred in some time, originated in a Pittsburgh department store which sold birds. One of the birds from the store was sent to the federal health authorities in Washington and on examination was found to have suffered from parrot fever or psittacosis.

A severe outbreak of parrot fever in many parts of the country occurred in 1930. In order to fight the disease, which was till then little known, the importation into this country of love birds and parrots, which transmit it, was forbidden temporarily. The disease subsequently affected birds in aviaries in southern California and a number of cases were reported from that source. The disease has now become rather a commonplace instead of being a novelty, and outbreaks of two or three cases are reported to the U. S. Public Health Service every few months. The outbreak in Pittsburgh seems to be much more severe.—*Science News-Letter*.

#### THE ABSENCE OF DETERIORATING EFFECTS OF BROMIDES IN EPILEPSY

Harry A. Paskind, Chicago (*Journal A. M. A.*, July 14, 1934), found that almost all writers on the use of bromides in epilepsy have stated that, although they are efficient in eradicating or ameliorating the seizures, they are dangerous in that they sometimes produce mental deterioration. A study of fifty-four patients with epilepsy who have taken bromides in sufficient amounts to affect the seizures for from one to seventeen years show that only three, or 5.5 per cent, became deteriorated. The occurrence of deterioration in this more adequately treated group was less than in a larger, less adequately treated group. The misleading statements in the literature regarding the adverse effects of bromide in epilepsy are due to failure to distinguish between intoxication and deterioration, the use of bromides in persons with epilepsy who were destined to deteriorate without their use, and the chance occurrence of behavior disturbances in insane or neurotic epileptic patients who had received bromides and in whom such behavior disorders occur without bromides.

#### INHERITANCE OF DIABETES

Priscilla White, Elliott P. Joslin and Gregory Pincus, Boston (*Journal A. M. A.*, July 14, 1934), found that each member of similar twins developed diabetes more than four times as frequently as each member of dissimilar twins; namely, 70 per cent of the former and 16 per cent of the latter. The incidence of diabetes in the relatives of a diabetic population is significantly greater than in a nondiabetic group. Mendelian ratios were found in a consecutive series of diabetic cases and in a selected mendelian population tested by histories and blood sugars. Many blood relatives of diabetic patients have symptomless hyperglycemia, the significance of which is unknown. These instances occurred when one would expect diabetes to develop according to mendelian inheritance. The authors believe that the potentiality for developing diabetes is transmitted as a simple mendelian recessive trait and that the secondary factors which permit the expression of the gene can best be studied among predestined diabetic patients; namely, homologous twins of diabetic patients and the offspring of two diabetic patients.

#### ORGANIZED MINORITIES

Organized minorities have done and now are doing a great deal of harm in this country, and it makes no difference whether organized to secure governmental benefactions, or for some other purpose, if that purpose is purely selfish or is designed to create sectional, class, group, religious or other differences. It should be remembered that the persistent propaganda of such organized minorities is to sway the people by some form of an emotional appeal that differences may be created, out of which those guiding these movements may reap individual benefit. Most of such organized minorities are free in their denunciation of all who oppose them and by their methods intimidate the average person, so that their opposition is small indeed. Every loyal American should exercise the greatest care



to prevent being carried away by some emotional appeal, or by some promise of personal reward through connection with, or approval of, any of the many dangerous organized minorities to be found in this country.—*Committee on American Education.*

### SUPERIOR PULMONARY SULCUS TUMOR

Harold W. Jacox, Ann Arbor, Mich. (*Journal A. M. A.*, July 14, 1934), presents two cases of the clinical entity described as superior pulmonary sulcus tumor. The clinical features of this condition represent a definite and striking syndrome quite different from that of the usual primary malignant growths of the lung. The apical chest tumors reported by Henderson do not fall into this particular category. Neither do large lesions of the upper lobe, which may also produce Horner's syndrome. The author presented evidence supporting the view that superior pulmonary sulcus tumor is an atypical form of primary bronchogenic carcinoma. He found that a modification of Coutard's method of intensive deep roentgen therapy failed to control the symptoms of this disease. He states that chordotomy should be considered as a valuable palliative procedure. Wound healing was not retarded by intensive roentgen therapy.

### TREATMENT OF MALDESCENT OF THE TESTICLE

Samuel Cohn, San Francisco (*Journal A. M. A.*, July 14, 1934), treated four otherwise normal children for maldescent of the testicle with subcutaneous injections of anterior pituitary-like principle. Three cases evidenced complete improvement. The fourth case showed evidence of mechanical obstruction and will require operation. A fifth case presented one operated side, which furnished an admirable opportunity for a controlled observation, and showed evidences of pituitary hypofunction. Both the condition of the testicles and the general glandular hypofunction improved under the therapy. The sixth patient was operated on again after several years and injections of anterior pituitary-like principle were used as an adjunct to surgery. The result was entirely successful as to both the condition of the testes and the general condition of the patient.

### DANGER OF ANGER

Golfer: "Hi, caddie! Isn't Major Pepper out of that bunker yet? How many strokes has he had?"

Caddie: "Seventeen ordinary, sir, and one apoplectic!"—*Boston Transcript.*

### MUMMIES AND CODFISH

When the mummy of Pharaoh Rameses the Great was found, it was packed in the pages of the newspaper, *Le Temps*, and brought to Cairo in a wagon. The customs official weighed it on the scale and, "Not finding a corresponding customs levy in the list of tariffs, applied to it the ruling in regard to salt codfish."

This is not a tale of the Middle Ages, but of our very recent past. And can we ascribe such ignorance only to our past? Up to now a skeleton is imported

under the tariff on second-hand things.—*Nicholas Rocrich.*

### DO YOU KNOW?

*From Science News-Letter*

Disease-bearing mosquitoes are practically unknown in the Florida Everglades.

Tests show that yellow corn contains more vitamin A than white corn.

Young and rapidly growing cells of the body are more sensitive to radium than old or adult cells.

The number of children born in the United States in 1933 is estimated at about 600,000 fewer than in 1921.

Almost twice as many cases of otosclerosis, or hereditary progressive deafness, occur in females as in males.

Recent chemical discoveries may result in greater use of tobacco instead of arsenic preparations in insecticides.

Deaths from carbon monoxide gas are increasing out of all proportion to other forms of accidental death, warns the National Safety Council.

The cinchona tree which yields quinine is a native of South America, but today 97 per cent of the world's supply comes from Java.

Medical records were kept in the temple of Aesculapius in Greece, case histories being registered on marble tablets.

Ephedrine, discovered ten years ago, and used widely in nasal preparations, is obtained from a Chinese drug-plant used as a cure-all in China for 5,000 years.

It was in the beginning of the nineteenth century that pharmacists began to isolate the active constituents from crude herbs and plant products.

The University of Michigan Herbarium has been collecting botanical specimens for 95 years, and now has over 220,000 examples of plant life.

The death rate from tuberculosis among the Indians is seven or eight times that of the general population.

A queer "four-eyed" fish of Central America has its eyes divided in two, the upper part being for sight above water, and the lower for underwater sight.

### WORDS AND FRIENDS

There are over 400,000 words in Webster's dictionary. Out of four hundred thousand people, would you choose to become intimate with any of them without discrimination? You must choose your words as you choose your friends.—*Chicago Tribune.*

### METAPHEN IN COLITIS

For the purpose of using Metaphen in the treatment of those cases of colitis showing a preponderance of streptococci in the stools, a preparation is now available containing that drug in a strength of 1:5,000, in a 3 per cent agar jelly.

Because Metaphen is a mercurial preparation, which may produce toxic reactions due to idiosyncrasy, it must be used only under the care of a physician.

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### Marriages

HARRY LOUIS BERMAN to Miss Ella Stein, both of Chicago, June 24.

WILLIAM E. BUEHLER to Alice F. Willson, both of Chicago, July 26.

JOHN H. GLYNN to Miss Eleanor C. Schmidt, both of Chicago, June 18.

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### Personals

Dr. Ernest E. Davis, Avon, Ill. addressed the Jo Davies County Medical Society at Elizabeth, Ill., Aug. 2nd on: Occipito Posterior positions and their treatment.

Dr. William J. Carter, Mattoon, discussed stomach disorders, among other speakers before the Coles-Cumberland Medical Association at Neoga, July 19.

A public celebration was held at Cissna Park, July 15, in honor of Dr. William R. Roberts, who has practiced thirty-five years in the community.

Dr. Felix W. Sokolowski addressed the Madison County Medical Society in Alton, August 3, on increase of mental disorders and importance of mental hygiene.

Dr. Joseph Welfeld was elected president of the Chicago Urological Society at the annual meeting, May 24.

Dr. Ernest Gelhorn, professor of physiology, University of Illinois College of Medicine, was awarded the Alvarenga Prize for 1934 for his essay entitled "The Influence of Parathormone on the Neuromuscular System: An Experimental Analysis." The prize amounting to about \$300, is awarded by the College of Physicians of Philadelphia.

Dr. Frederick C. Warnshuis, Grand Rapids, for many years speaker of the House of Delegates of the American Medical Association and secretary of the Michigan State Medical Society, will go to California, October 1, to become secretary and director of public relations of the California

State Medical Association. Dr. Warnshuis, a native of Iowa, has been secretary of the Michigan State Medical Society for about twenty-one years.

Dr. William H. Walsh, hospital consultant, sailed, July 21, for London, where he will board a soviet steamer for Leningrad. Dr. Walsh is making an independent study of health and hospital conditions and practices in soviet Russia and his itinerary will include Leningrad, Moscow, Kharkov, Odessa, Kiev and Minsk. He will return in September via Warsaw, Berlin and Paris. Films on obstetrics made by Dr. Joseph B. DeLee will be exhibited by Dr. Walsh in various medical schools in the soviet union.

Dr. Edwin R. LeCount, professor of pathology, Rush Medical College, has received the 1934 James E. Stacy Award by the University of Cincinnati College of Medicine for "his experimental studies on the isolation of streptococci from sore throats and the experimental induction, through their injection, of acute, healing and scarring types of nephritis, identical with the chronic nephritides observed in man." The award consists of a medal and a sum of money and is bestowed for "significant contribution to the theory of focal infection in theory or practice."

Dr. Vernon C. David, since 1929 clinical professor of surgery, Rush Medical College, has been appointed chairman of the department, succeeding Dr. Arthur Dean Bevan, who has held the position since 1902. Dr. David graduated from Rush in 1907 and has been connected with the school since 1910. His first appointment was as assistant in surgery. Dr. Bevan will continue with his work at Presbyterian Hospital and at Rush as Nicholas Senn professor of surgery. He began his association with the school in 1887 as professor of anatomy. He is also an alumnus of Rush, having graduated in 1883.

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### News Notes

The officers of the Chicago Ophthalmological Society for the coming year are—E. V. L. Brown, President, Thomas D. Allen, Secretary.

The Society meets the third Monday of the month, from October to May.

—The Research and Educational Hospital of the University of Illinois College of Medicine, 1819



West Polk Street, is carrying on experiments to determine whether electrical changes in the air during storms are related to attacks of pollen asthma. Ten women were invited to participate in the research, which began August 15 and will continue until September 31.

—An outbreak of nine cases of epidemic encephalitis with four deaths in Highland was reported by the state board of health, August 8. The disease appears to be of the same type that prevailed in St. Louis during the summer of 1933. Twenty-five cases occurred in Highland and Madison County during last year's epidemic. All the patients except one were more than 50 years old.

—The International Assembly of the Interstate Postgraduate Medical Association of North America will be held in the Public Auditorium, Philadelphia, Pennsylvania, November 5-9, 1934. Many distinguished teachers and clinicians will appear on the program. A major list of the names of the contributors to the program, with other information, appears elsewhere in this Journal. All members of Illinois State Medical Society are cordially invited to attend. Registration fee of \$5.00 admits all members of the profession in good standing.

—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended August 11, indicate that the highest rate (18.8) appears for Peoria and the rate for the group of cities as a whole was 9.7. The death rate for Peoria for the corresponding week of 1933 was 12.4 and for the group of cities, 9.2. The annual rate for the eighty-six cities for the thirty-two weeks of 1934 was 11.8, as against a rate of 11.2 for the corresponding period of last year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

—The Illinois Emergency Relief Commission has directed that physical examinations be made of all men and women now enlisted under the Work Relief Administration and those to be employed in the future, to protect the workers from avoidable injury or disease, and the government or other employing bodies from future

unjustifiable claims for compensation. The work has been arranged in Cook County so as to give assistance to physicians who are in financial need. Physicians desiring this work should communicate with the Medical Relief Service, 1319 South Michigan Avenue. Groups will be assembled for examination at 1222 South Michigan Avenue. Physicians will be assigned to make examinations during three hour periods for ten consecutive working days not including Saturdays and Sundays, when the unit will be closed. Assignment will be made once each month and reimbursement per month will therefore be \$75 for thirty hours' work.

—There is no evidence of unusual malnutrition among school children in Scott County, while the children in Franklin County are better provided for now than in any recent years, according to the Illinois State Department of Health, which recently completed a five weeks study of child health conditions in the two counties. The purpose of the survey was to determine whether malnutrition and other conditions attributable to undernourishment or lack of food have increased among Illinois children during the last four years. A total of 2,394 children, nearly one-half of whom were in the first four school grades in the two counties, were examined. These counties were selected as typical of rural and mining counties. The physicians making the survey were of the opinion that there was no evidence of an unfavorable trend that may be charged against economic conditions of recent years.

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—Lectures were given in the Hall of Science at the World's Fair during August by the following physicians. A committee of the Chicago Medical Society arranged the program through the Educational Committee of the Illinois State Medical Society:

August 1—"The Role of Calcium in the Body," Kenneth K. Jones, M. D.

August 2—"Believe It or Not About Babies," W. C. McKee, M. D.

August 3—"Growths in the Mouth and Their Danger," Casper Epstein, M. D.

August 4—"Human Salvage," Harry E. Mock, M. D.

August 6—"Avoiding Contagious Diseases," W. W. Bauer, M. D.

August 7—"Athlete's Foot," James Herbert Mitchell, M. D.

- August 8—"Infantile Paralysis," Fred W. Hark, M. D.
- August 9—"The Story of Blood Transfusion," Raymond H. McPherron, M. D.
- August 10—"Mental Health in the Child," Harold S. Hulbert, M. D.
- August 11—"Health and Weather—Some True and False Beliefs," Frederic T. Jung, M. D.
- August 13—"Heart Disease," Robert S. Berghoff, M. D.
- August 14—"Allergic Disease of Childhood," Franklin J. Corper, M. D.
- August 15—"What Cancer Is and How It Happens," Frank L. Rector, M. D.
- August 16—"Health of the Infant and Preschool Child," Heyworth N. Sanford, M. D.
- August 17—"Some Surgical Aspects of the Thyroid Gland," Louis D. Moorhead, M. D.
- August 18—"Blindness: Its Cause and Aftercare," Oscar B. Nugent, M. D.
- August 20—"Modern State Hospital Treatment of Mental Disorders," Charles F. Read, M. D.
- August 21—"Accidents Due to 20th Century Speed," John R. Harger, M. D.
- August 22—"Hay Fever," Tell Nelson, M. D.
- August 23—"Occupational Diseases," C. O. Sappington, M. D.
- August 24—"Having Operations," Thomas A. Carter, M. D.
- August 25—"Resuscitation," Hart E. Fisher, M. D.
- August 27—"Hoarseness—A Warning Sign of Cancer," M. Reese Guttman, M. D.
- August 28—"Ulcer of the Stomach," Lowell D. Snorf, M. D.
- August 29—"The Ringworm Situation," Cleveland J. White, M. D.
- August 30—"Infections of the Mouth," Joseph E. Schaefer, M. D.
- August 31—"Feet and Posture," Frederick C. Test, M. D.
- Committee—Dr. Wilbur Post, Dr. Julius H. Hess, Dr. Hugh N. MacKechnie, Chairman.

## Deaths

THOMAS E. ALYEA, Earlville, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1880; also a druggist; aged 81; died, July 15, of shock, as the result of a fall.

FREDERICK W. BELKNAP, Chicago; Northwestern University Medical School, Chicago, 1894; aged 66; died, July 16, of cerebral hemorrhage.

HENRY THOMPSON BURNAP, Alton, Ill.; St. Louis Medical College, 1878; aged 78; died, July 3, of heart disease.

J. BAPTIST BUTTS, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; aged 83; died, March 18, of chronic nephritis.

CHAMBERS D. CALHOUN, Elburn, Ill.; Jefferson

Medical College of Philadelphia, 1884; aged 75; died, July 11, in the Community Hospital, Geneva, of heart disease.

ANDREW J. COEY, Chicago; Chicago Medical College, 1880; aged 76; died, June 29, of carcinoma of the larynx.

ALFRED L. FEIN, Chicago; Loyola University School of Medicine, Chicago, 1917; a Fellow, A. M. A.; aged 46; died, July 18, of carcinoma of the lung with metastasis to the brain.

ANNA JACOBS GREEN, Chicago; Hahnemann Medical College and Hospital, Chicago, 1900; aged 62; died suddenly, June 14, of myocarditis and arteriosclerosis.

ROY WESLEY KLAUS, Chicago; Hahnemann Medical College and Hospital, Chicago, 1912; aged 47; died, July 11, in St. Francis Hospital, Evanston, of acute appendicitis.

FLORENCE B. MACRAE, Chicago; Eclectic Medical College, Cincinnati, 1926; a Fellow, A. M. A.; on the staff of the Woodlawn Hospital; aged 44; died, July 9, of carcinoma of the liver.

CALVIN CARLIN MONTGOMERY, Lincoln, Ill.; Washington School of Medicine, St. Louis, 1900; past president of the Logan County Medical Society; served during the World War; aged 65; died, May 15, of myocarditis, bronchial asthma and diabetes mellitus.

AUGUST H. NIEMILLER, Browns, Ill.; Medical College of Ohio, Cincinnati, 1875; aged 81; died, June 14, in the Olney (Ill.) Sanitarium.

CHARLES AUBREY PARKER, Chicago; Rush Medical College, Chicago, 1891; a Fellow, A. M. A.; member of the Clinical Orthopedic Society; associate clinical professor of orthopedic surgery at his alma mater; past president and secretary of the alumni association of Rush Medical College; chairman of the committee on after-care and study of infantile paralysis of the Visiting Nurse Association of Chicago, for which committee he prepared a pamphlet on "Infantile Paralysis for Parents and Patients"; for many years on the staffs of the Home for Destitute Crippled Children, Cook County Hospital and the Presbyterian Hospital; aged 66; died, July 16, of pseudobulbar paralysis.

ISAAC SHER, Chicago; Illinois Medical College, Chicago, 1901; aged 78; died, July 25, of myocarditis, nephritis and arteriosclerosis.

ALEXANDER TULLIS, Chicago; Jenner Medical College, Chicago, 1909; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1911; aged 78; died, June 28, of lobar pneumonia and benign prostatic hypertrophy.

HARRY WOOD, Batchtown, Ill.; St. Louis University School of Medicine, 1905; a Fellow, A. M. A.; served during the World War; aged 55; died, July 4, of endocarditis.

DAVID HENRY WORTHINGTON, Aurora, Ill.; Rush Medical College, Chicago, 1879; aged 83; died, June 2, of chronic myocarditis.



# **AUTUMNAL CATARRH (HAY FEVER) NEW VASO-CONSTRICTIVE AGENT BRINGS PROMPT, PROLONGED RELIEF**

Regardless of attempts at abortive treatment—desensitization, change of climate, etc.—your first consideration will be to provide patient comfort—quick, prolonged relief—from the intolerable congestion, lacrimation, sneezing.

## **NEO-SYNEPHRIN HYDROCHLORIDE**

*(levo-meta-methylaminoethanolphenol hydrochloride)*

This most recent advance in the field of vaso-constrictive agents has been found to possess the following advantages:

1. Less toxic in therapeutic doses than epinephrine or ephedrine.
2. Action more sustained than epinephrine.
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4. Without sting.
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Neo-Synephrin Hydrochloride acts by contracting the musculature of the capillaries and arterioles. The effect occurs usually without nervousness, insomnia or other untoward symptoms.

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 Dr. Paul Strassmann, Prof. of Obstetrics and Gynecology, University of Berlin, Berlin, Germany.

### TENTATIVE:

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 Prof. Mario Donati, Head of Dept. of Surgery, University of Milan, Milan, Italy.  
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ILLINOIS PERIODIC PHYSICAL EXAMINATION RECORD\*

Case No.....

Name ..... Age..... Height ..... Weight..... usual.....  
 present.....  
 normal.....

Temp. (3 min.)..... Pulse Rate { Seated (before exercise) .....  
 { Standing (before exercise) .....  
 { 60 sec. after exercise (sufficient to increase pulse to 110).....

Bl. Pres.: Sitting { Sys..... Lying { Sys.....  
 { Dias..... { Dias.....

Hearing { R..... Vision { R.....  
 { L..... { L.....

Urine: Color..... Reaction..... Sp. Gr. .... Alb..... Sugar.....  
 Microscopic.....

1. (Standing)

- (1) Posture: erect.....stooped.....Lateral curvature .....
- (2) Superficial glands .....cervical.....axillary .....inguinal..... epitrochlear.....
- (3) Abdomen: flat .....Pendulus .....
- (4) Arms .....defects .....
- (5) Legs .....big veins..... scars.....
- (6) Feet: flat .....painful .....deformed.....
- (7) Skin .....Hands .....
- (8) Nutrition .....Hernial rings .....
- (9) Chest: expir. ....inspir.....Romberg .....

2. (Sitting)

- (1) Scalp .....Patellar reflexes .....
- (2) Eye reflexes .....to light ..... to distance .....
- (3) Nose: conformation.....air passages free .....obstructed .....discharge.....
- (4) Teeth: caries.....devitalized.....crowned .....
- (5) Gums: healthy.....retracted.....inflamed .....
- (6) Tongue: clean.....coated..... moist .....dry .....
- (7) Pharynx: ulcers ..... scars .....tonsils .....
- (8) Ears: conformation .....discharge .....
- (9) Heart: locate apex (measure from mid-line—state interspaces).....character of sounds.....
- (10) Lungs: abnormal findings.....

3. (Lying)

- (1) Abdomen: palpation .....tender..... tumors .....
- (2) Liver: percussion .....tender..... palpable .....
- (3) Spleen: percussion .....tender..... palpable .....
- (4) Kidneys: palpable .....tender .....
- (5) Rectum: inspection .....digital findings .....
- (6) Male Genitalia .....
- (7) Female Genitalia and pelvis.....

4. Summary: defects of function and structure and errors of habit.....

5. Advice given to the patient.....

.....

.....

.....

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.....

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.....

.....

\*Prepared by the Illinois State Medical Society.

Copies of this physical examination record may be secured from Doctor Harold M. Camp at Monmouth, Illinois, or the Educational Committee, Illinois State Medical Society, 185 North Wabash Avenue, Chicago.

## HISTORY

(This side to be filled in by the person to be examined)

1. Name ..... Country of birth.....Date of birth.....
2. Address .....Race .....
3. Single, married, widowed, divorced.....
4. Occupation .....
5. How often have you changed your work?.....Why? .....
6. Is your work dangerous or unhealthy?.....
7. Is it indoors or out?.....
8. Is it light where you work?.....Dark?.....Dusty? ....Smelly?....Noisy?....Crowded?....
9. At work are you usually seated, standing, or walking? .....
10. How many hours a day do you work?.....How many days a week?.....
11. Have you a room and bed to yourself?.....With window open?.....
12. What are your hours of sleep?.....Is your sleep restful?.....By what is it disturbed? .....
13. Where do you eat your meals?.....
14. How much time do you take for each meal?.....
15. Of what foods are you especially fond?.....
16. How much do you drink daily of:
 

Water .....	Tea .....	Soft drinks .....
Milk .....	Coffee.....	Alcoholic drinks .....
17. Do you eat candy?.....
18. Do you have a bowel movement daily without the use of drugs?.....What laxative do you use?.....How often? .....Do you have pain or bleeding with bowel movement?.....How often? .....
19. Have your menstrual periods been regular?.....
20. Have they interfered with your usual occupations? .....
21. Have pregnancies and confinements been free from accidents? .....
22. How often do you bathe?.....
23. What regular exercises do you take in addition to your work?.....
24. Do you share in church, social, political, club, or trade associations?.....
25. What are your pleasures or recreations?.....
26. Have you had any of the following diseases and at what ages?
 

Tuberculosis .....	Scarlet fever .....	Tonsilitis .....
Malaria .....	Diphtheria.....	Frequent colds.....
Rheumatism .....	Typhoid fever .....	Syphilis or gonorrhea.....
27. Do you have dyspepsia?.....
28. Do you have headaches?.....
29. Are you short of breath on going up stairs?.....
30. Do you catch cold easily and often?.....
31. Are you subject to sore throats?.....
32. Have you been vaccinated against small pox, typhoid fever, diphtheria?.....When? .....
33. Have you had any accidents, broken bones or surgical operations? .....
34. How often do you consult you dentist?.....
35. Are you as well at present as formerly?.....If not, why?.....
36. Do you remember any important diseases of your parents or family which may have affected your own health? .....

Remarks: .....

.....

.....

.....

.....





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## Book Reviews

A TEXTBOOK OF GYNECOLOGY. By Arthur Hale Curtis, M. D., Professor and Head of the Department of Obstetrics and Gynecology, Northwestern University

Medical School; Chief of Staff and Chief of the Gynecological Service, Passavant Memorial Hospital, Chicago. Second Edition, Reset. 493 pages with 300 original illustrations, chiefly by Tom Jones. Philadelphia and London: W. B. Saunders Company, 1934. Cloth, \$6.00 net.

As in the preceding volume the author has presented his subject in concise form and in an entirely independent manner. Nearly all illustrations are original. Although the text continues to be essentially a record of personal experience, the literature has been thoroughly covered and important advances have been recorded.

THE POWER TO LOVE. By Edwin W. Hirsch, M. D. New York. Alfred A. Knopf, Inc. 1934. Price \$4.00.

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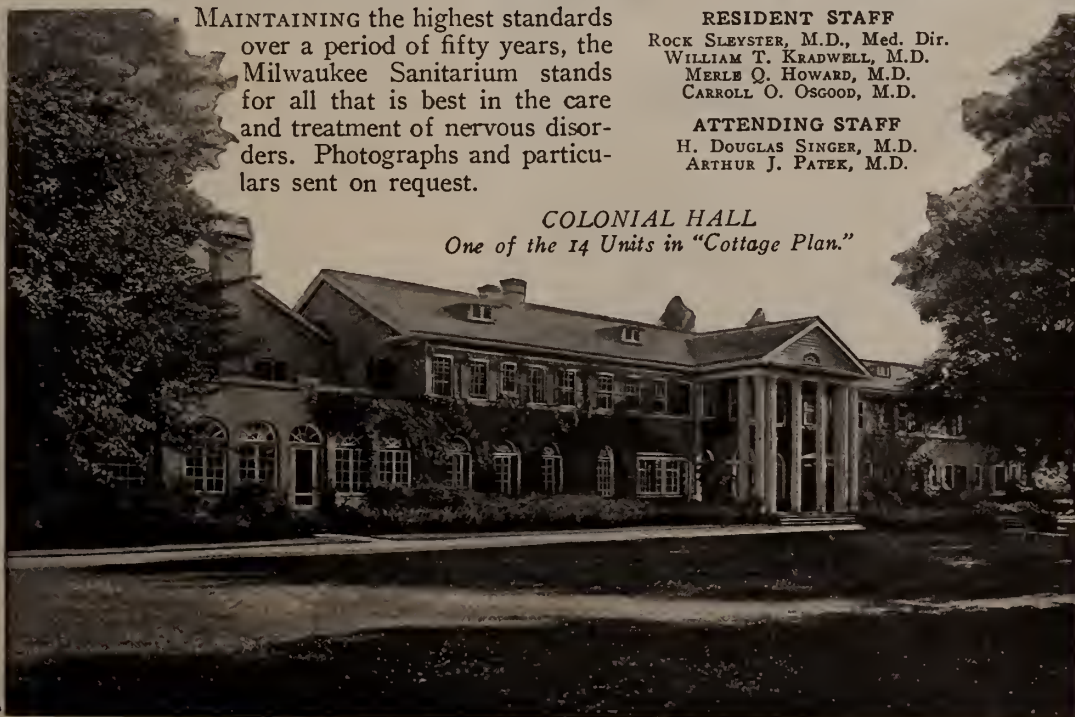
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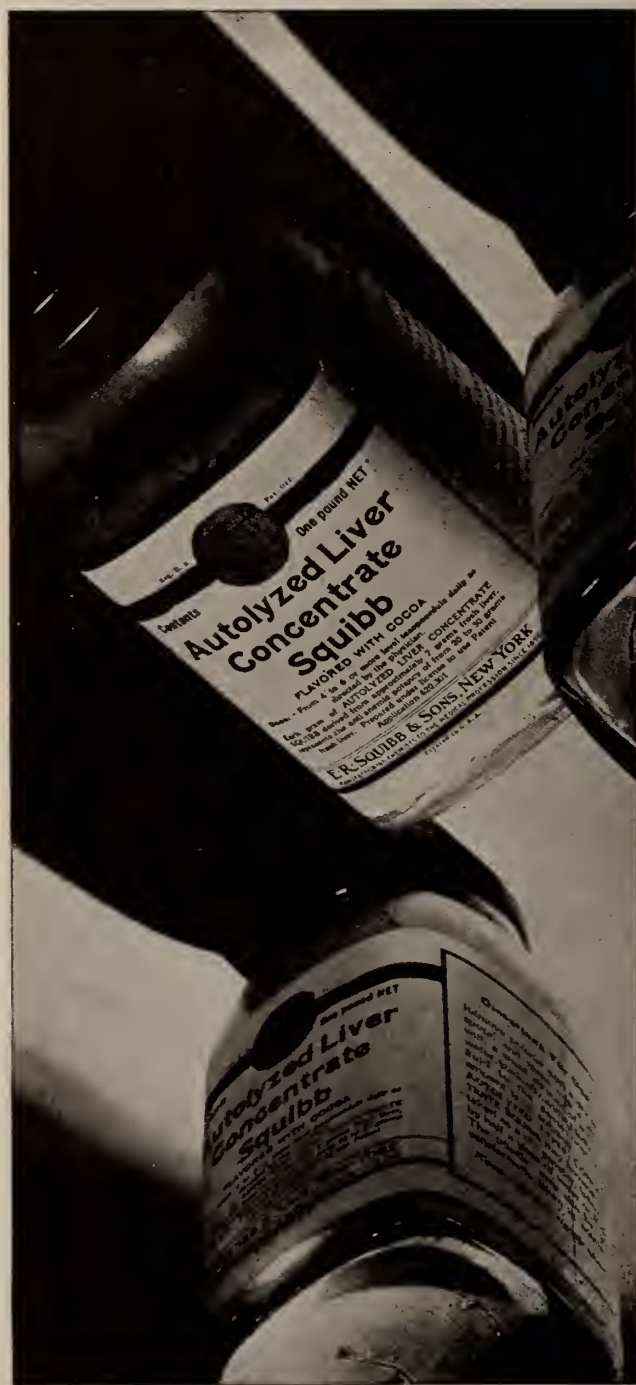
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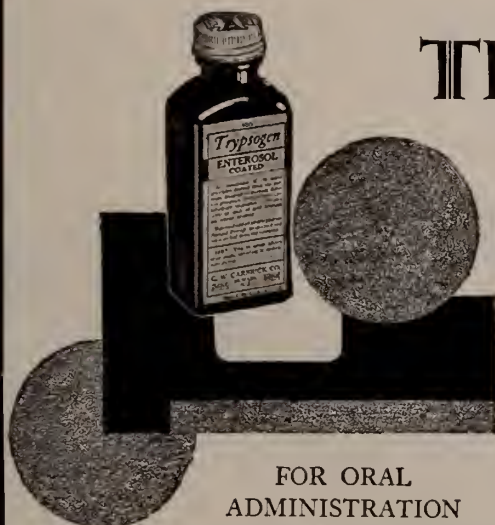
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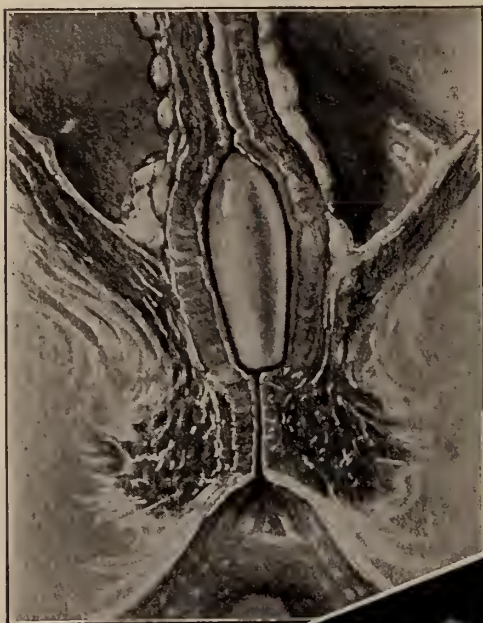
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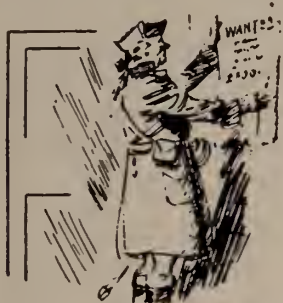
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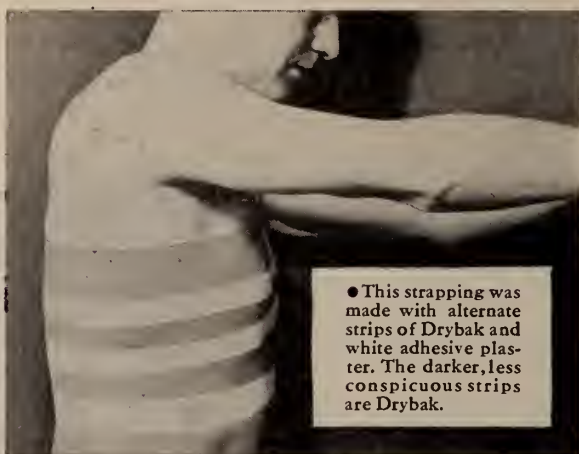
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"Grape sugar: In one-month baby, 8.6 grams per kilogram (Greenfield).

"Galactose: No accurate data.

"Levulose: (Lower for babies than adults.) One gram per kilogram (Keller).

"Maltose: Over 7.7 grams per kilogram (Reuss).

"Lactose: 3.1-3.6 grams per kilogram (Gross).

"Cane sugar: Probably about the same as lactose (Reuss)."—J. L. Morse, and P. B. Talbot: *Physiology and pathology of the digestion of the carbohydrates in infancy*, Boston M. & S. J., 164:852-855, June 15, 1911.

## 1912

"Maltose has for many years been considered one of the most valuable of infant foods in modifying milk formulas; but the German school in the last few years has called special attention to the value of this sugar as a substitute for milk and cane sugars in conditions of intestinal fermentation. It is more easily assimilated and more rapidly absorbed than lactose or saccharose and it may be taken therefore by the infant in larger quantities without producing sugar fermentation."

"Maltose is especially indicated in the feeding of very young and delicate infants, and in all cases where either milk or cane sugar has produced intestinal fermentation and sugar intoxication. In the feeding of maltose it has been found advisable to combine it with about equal parts of dextrin. In Germany, and later in this country, 'Soxhlet's Nahrzucker' (which contains maltose 52.44 per cent., dextrin 41.26 per cent., and sodium chlorid 2 per cent.) has been largely used. Mead's Dextrin-Maltose (malt sugar), which contains about equal parts of dextrin and maltose, is a similar preparation which may be used instead of milk sugar or cane sugar for modifying milk mixtures."—B. K. Rachford: *Diseases of Children*, D. Appleton & Co., New York, 1912, p. 125.

## 1913

"It is well to start with one ounce (albumin milk, or albumin-buttermilk) to every pound of body-weight in the twenty-four hours, increasing gradually until two or three ounces to the pound of body-weight are being given. Then add sugar, preferably a malt sugar, about one-fourth of an ounce at a time to the twenty-four-hour quantity, until an ounce or an ounce and a half is being given."—J. Foote: *Principles of treatment in malnutrition and atrophy of infants*, Interstate M. J., 20:1913, No. 6.

## 1914

"Milk sugar and cane sugar may be used in infant feeding, but my preference is for malt sugar. Mead and Johnson put up a convenient preparation which they call Dextrin-Maltose and which consists of maltose 51 per cent., dextrin 47 per cent., sodium chloride 2 per cent., and which has a food value of about 110 calories per ounce."—J. A. Gannon: *Whole milk dilutions in feeding normal infants*, Washington Med. Annals, 13:38-43, Jan., 1914.

## 1914

"Dextrin-maltose causes the greatest gain in weight, cane sugar less, and lactose produces the least gain."—M. S. Keuben: *Observations on milk station infants*, Arch. Pediat., 31:176-196, March, 1914.

## 1914

"A composite opinion of the sugars is in favor of dextrin-maltose, milk sugar and cane sugar in the order named."—R. A. Strong: *Essentials of modern artificial feeding of infants*, Lancet-Clinic, March, 14, 1914.

## 1914

"Experiments show that sugars vary in their rate of absorption, some being assimilated rapidly, while others distribute their nutrition over a longer period. For example, maltose is most promptly assimilated, cane sugar next and milk sugar slowest."

"The condition in which dextrin-maltose is particularly indicated is in acute attacks of vomiting, diarrhea and fever. It seems that recovery is more rapid and recurrence less likely to take place if dextrin-maltose is substituted for milk sugar or cane sugar when these have been used, and the subsequent gain in weight is more rapid."

"In brief, I think it safe to say that pediatricians are relying less implicitly on milk sugar, but are inclined to split the sugar element, giving cane sugar a place of value, and dextrin-maltose a decidedly prominent place, particularly in acute and difficult cases."—W. D. Hoskins: *Present tendencies in infant feeding*, Indianapolis M. J., July, 1914.

## 1915

"In the severe cases (of diarrhea) he (Benson) uses Finkelstein's casein milk with malt sugar. He also believes that dextrin-maltose is

to be preferred to milk sugar or any other sugar, as the infants gain more rapidly and digest more easily this form of sugar."—R. A. Benson: *Observations on 1,500 artificially-fed infants*, Med. Century, Feb., 1915, p. 33; abstr. Arch. Pediat., 32:556-557, July, 1915.

## 1915

"Until very recently we have taken it for granted that milk sugar was the best, but now many consider that malt sugar is even better. However, the malt sugar is not used in its pure state, but in the form of extracts, as dextrin-maltose."—E. B. Lowry: *Your Baby*, Forbes & Co., Chicago, 1915, p. 162.

## 1915

"Cane-sugar (saccharose), like most of the other disaccharids, is not absorbed as such, but must first be split by the invertase of the intestinal secretion into the two glucoses, dextrose and levulose, which are readily absorbable. Maltose (malt-sugar) occupies an exceptional position among the disaccharids, in being partly absorbable as such. This is probably due to the fact that it can be split not only by the maltase of the digestive juices, but also by the same ferment being present and active in the circulating blood (Chittenden and Mendel)."

"Anticipating a little, we may mention that all cases, in which lactose may advantageously be replaced by other carbohydrates, are pathological, and without exception the result of unsuccessful attempts at artificial feeding; they will therefore be discussed under that head."

"Dextrin, intermediate between sugar and starch, is physiologically nearer to the former; we shall have occasion to see that, under certain conditions, it may supplement sugar very advantageously. Given together with maltose, it materially delays the fermentation of the latter; Stolte observes that the more complex the carbohydrate the longer fermentation is postponed."

"All malted foods contain dextrin, and there is reason to believe that their value largely depends on their being somewhat complicated; such, at least, is the opinion of Usuki and Stolte, who believe that a mixture of carbohydrates is more slowly absorbed than a pure sugar, and therefore tends to check fermentation in the intestine. Southworth explains the matter more definitely, by attributing the antifermentative action entirely to the dextrin, which is not fermentable as such, but only after it has been split into maltose, a process that takes place only gradually, and in the later stages of digestion."

"I make it a rule to give the ordinary formula with dextrin-maltose whenever the usual milk or cane-sugar mixtures seem to cause excessive fermentation and colic, or are attended with the evacuation of soap stools. I decidedly prefer this, as a preliminary measure, to going over at once to some very low fat combination, which can only be a temporary makeshift at best. I also find dextrin-maltose an excellent addition to albumin-milk when the first object of that food has been achieved and a gain in weight is desired; in this way I have succeeded in feeding albumin-milk far beyond the period usually advised, with highly gratifying results."—F. L. Wachenheim: *Infant-Feeding: Its Principles and Practice*, Lea & Febiger, Phila., 1915, pp. 31, 33, 146, 158.

## 1915

"The infant with diarrhea and vomiting is given nothing but tea for from twelve to twenty-four hours, no longer, and then the albumin milk is commenced, not over 5 gm. ten times a day, with 3 per cent. of a maltose-dextrin mixture. The amount of albumin milk is increased by 50 gm. each day until the daily ration totals 300 gm. After the weight has become stationary, carbohydrates can be added up to 5 per cent. of the maltose-dextrin mixture."

"Albumin milk is not so uniformly effectual in dysenteriform diarrhea as in cholera infantum. Whey seems to act better, diluted half and half with oatmeal gruel. After the starvation period he gives 50 gm. of the whey and increases by 50 gm. daily with equal amounts of oatmeal gruel. As improvement sets in 3 per cent. of a dextrin-maltose preparation can be added."—L. Langstein: *Cholera infantum and other severe diarrheas in infants*, Therap. Monatsh., V, 29, August, 1915; Abstr. J.A.M.A., 65:1314, Oct., 7, 1915.

## 1916

"Dextrin-maltose, having a higher absorption tolerance than the other sugars, is less likely to cause intestinal disturbances when large amounts of it are given."—H. R. Mixsell: *A brief résumé of the role of carbohydrates in infant feeding*, Arch. Pediat., 33:31-36, Jan., 1916.

## 1916

In cases of malnutrition, and indigestion in infancy, "The appetite improves rapidly, and the stools soon become normal in appearance, if the sugars are intelligently prescribed. By this I refer to proper proportions of dextrin and maltose. When there is a tendency to looseness, I have used the preparation known as 'dextrin-maltose,' for the extra carbohydrates; . . ."—M. Ladd: *Further experience with homogenized olive oil mixtures*, Arch. Pediat., 33:501-512, July, 1916.

Continued down to 1934

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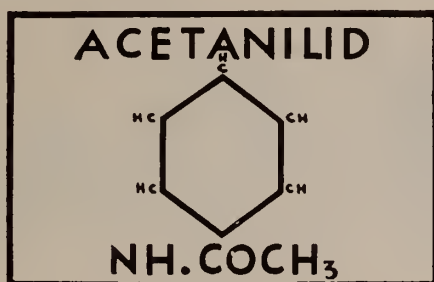
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GRANULOCYTOPENIA



THE toxic element in many analgesics which have been found to cause granulocytopenia, is now thought to be due to the presence of the pyrazolon ring (Beckman's "Treatment in General Practice"). The pyrazolon ring does not enter into the formula of acetanilid. Pyrazol compounds are not broken down in the body and eliminated like acetanilid which is broken down into para amino phenol and rapidly eliminated. It can be detected in the urine in 30 minutes.

No authentic cases of granulocytopenia have been traced to acetanilid. . . . Persons taking several times the normal dose of acetanilid continuously over a period of weeks, failed to produce any variations in the white cell count and no significant change in the red. No blood count is necessary when acetanilid is given even steadily, over a period of weeks.

The freedom from toxicity of acetanilid has been proven. Yet many physicians use it but infrequently because of erroneous conclusions drawn from laboratory experiments not comparable with the practical therapeutic use of acetanilid. Other drugs which in recent years have attained wide usage have just been recognized as agents that must be used with extreme care and as being a decided factor in the etiology of granulocytopenia.

The prompt, effective relief of pain as induced by the acetanilid in Bromo-Seltzer, is supported by the synergistic action of bromide and caffeine, in a combination requiring the minimum dose of these three. This combine blocks off incoming pain sensations and at the same time intellectual effort is improved. Bromo-Seltzer, the unexcelled headache relief, is made by the largest manufacturers of effervescent salts in the world, backed by a half century of success.



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# ILLINOIS MEDICAL JOURNAL

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## Editorials

### FALSE AND MISLEADING MATERNAL STATISTICS

For years the ILLINOIS MEDICAL JOURNAL has been insisting that any comparison of international mortality statistics is ridiculous unless a standardized international yardstick is used in the computations of statisticians.

Despite the obvious truth that you can not measure accurately any commodity with a yardstick that contains 36 inches in one community and 38 inches in another, this farce of comparative figures continues right merrily. A great hullabaloo that shows no indication of quieting was renewed when the Section on Gynecology and Obstetrics of the Academy of Medicine raked the general practitioner over the coals in a report on Maternal Mortality, despite the fact that the family physician is well qualified to handle 90 per cent. of maternity cases.

According to this report some 61 per cent. of the maternal deaths may be ascribed to the negligence of the attending physician.

Looking into the source of a few statistics let it be connoted that in this country the number of maternal deaths is tabulated by the Census Bureau. Later the Children's Bureau of the Department of Labor publishes the results of such tabulation.

In 1926, Publication 158, written by Robert Morse Woodbury, Ph.D., was issued and entitled "Maternal Mortality."

On page 58 of this pamphlet appears this apologetic statement:

"Detailed study of the *results of applying the United States instead of the English rules to the deaths in England and in Wales during 1920, indicate that the rate in England and Wales would have been increased by about 15 per cent. if the United States Rules had been applied.*"

Now in 1920, in the United States, deaths incidental to childbirth totalled 7.99 per 1,000 women who survived confinements. This figure in England and Wales totalled 4.33 per 1,000 by English rules.

Bear in mind that the yardstick is not the same. Adding 15 per cent. to the English-Welsh figures brings these up to 5 per 1,000, a figure that leaves United States statistics still some 3 per 1,000 higher than those of a theoretically comparable country.

Bear in mind again that this difference lies largely in the yardstick rather than in the cemetery. The United States is handicapped by a large negro population, existing as a poor maternal risk because of contracted pelvis due to rickets, to the poor general state of hygiene and to the incidence of venereal disease, always high in the colored race. Compare the figures that show that in 1921 among the whites the maternal mortality was 6.6 per 1,000, and among the negroes 10.8 per 1,000.

Another item of distortion for American mortality statistics lies in the fact that statisticians in Washington fail to differentiate between deaths from natural confinements and deaths from abortion, of which in this country a great number is performed. Many women attempt to perform abortions upon themselves, involving a hazard equivalent to suicide.

Even when the operation is at the hands of either law-breaking physicians or midwives, the hazard is scarcely lessened.

Dr. Julius Levy (American Medicine, June, 1934), director of the Division of Child Hygiene of the Newark Health Department, investigated all maternal deaths in Newark in 1924, 1927 and 1928, and came to the conclusion that in the cases he investigated, abortions caused the maternal deaths in 20 per cent. of all cases of maternal deaths and in 60 per cent. of those dying within the first six months of pregnancy. These figures are startling and show us the valuelessness of our present methods of recording maternal deaths, as these deaths do not form any part of the normal hazard of giving birth to children and should be tabulated separately. A legitimate practitioner does not perform abortions except in a small minority of cases where it is necessary to save the mother's life, when it becomes legal to do so. An abortion is performed only after a consultation with a reputable physician who concurs in the fact that such an operation is imperative in order to save the mother's life. To saddle the medical profession with the blame for mortality from operations done by the patient herself or the outlaws of the

profession is manifestly unjust. Dr. Dorothy Reed Mendenhall in another investigation showed that in 1927, 1,256 maternal deaths occurred in seven states investigated, and 299 of these deaths or approximately 25 per cent. were due to abortions. A proper correction of our maternal mortality rate would show that while it is not the lowest in the world, it is less than the average of all countries.

The lowest rate seems to be in the Scandinavian countries, and because abnormal cases are extremely rare, and the women thus are better risks. A contracted pelvis in those countries is most exceptional. Operations become unnecessary. Pain is less. Shock is less, recovery being uneventful. Any operation has a certain element of risk.

Page 25 of the U. S. Department of Labor Bulletin entitled "Maternal Mortality" admits that no distinction is drawn between deaths from septic full term confinements and deaths from infected abortions.

The medical profession is striving in every way to reduce the maternal mortality rate to as near zero as possible. This can be brought about only with the cooperation of the patient classified as good, fair and poor risks. Good risks are normal healthy women and have uncomplicated confinements even if confined by midwives. Most American midwives have a training far inferior to that of European midwives. Especially the negro midwives have no scientific training whatsoever. The untrained midwife is another factor swelling our maternal mortality statistics.

Fair risks may frequently be converted into good risks by prenatal care. Heart trouble, kidney trouble, diabetes, and venereal disease may all be much mitigated before delivery. These cases are well taken care of by any good general practitioner who has supplemented his medical education by a few months of obstetrical training in a hospital. Midwives should never touch such cases.

The poor risk should be diagnosed early in pregnancy by the general practitioner, and promptly referred to a specialist if necessary. These cases include marked degrees of contracted pelvis, probably requiring a Cesarean operation (slight degrees of contracted pelvis are very frequent and are properly handled by the general practitioner), toxemias when severe enough to threaten eclampsia, and certain hemorrhagic con-



ditions readily recognized by any good practitioner.

American methods of gathering statistics are largely to blame for our supposedly high rate of maternal mortality. The family physician handles the majority of confinements, and handles them well, and is almost invariably underpaid. In most cases, the physician's fee is well within the people's means, is very moderate, and usually the physician is able to collect only part of his fee, or none of it. Many physicians refuse confinements on account of the smallness of the fee charged by their competitors, in no way commensurate with the work or responsibility involved. A confinement should be considered equivalent in responsibility to an appendix operation. Small fee does not excuse careless work upon the part of the obstetrician, but it might cause some of our better trained men to refuse cases.

The New York Obstetrical Society disagrees with the report of the New York Academy of Medicine. It would have been wiser for the Academy of Medicine to have made constructive suggestions for lowering the mortality rate, rather than destructive criticism. Why was the report sent to the lay press? The Academy should have issued a booklet to the members of the medical profession, giving recommendations such as:

1. Proper prenatal care.
2. Proper aseptic technique.
3. Avoidance of meddlesome obstetrics. Instrumental deliveries not to be performed unnecessarily.
4. The dangers in the use of pituitrin.

It will be noted by the reader that the maternal mortality of New York City, in the report, is 5 to 1,000, while in the country at large it is 7 to 1,000. New York City, in spite of the severe criticism given in the report, compares favorably with most European cities.

The conscientious physician welcomes constructive criticism so that the maternal death rate would be lowered to an irreducible minimum (a certain number of deaths will always be inevitable because of a definite hazard in bearing children, especially in instrumental cases. The prospective mothers should engage the family physician with confidence, instead of being frightened away from him, to the large medical centers, already monopolizing too much practice.

There is no criticism of the manner in which obstetrical cases are conducted in the large hospitals. The aseptic technique and skill are above criticism.

## DOCTOR, GO TO THE POLLS AND VOTE ON NOV. 6—TABOO PARTY POLITICS

THE BULK OF THE DOCTOR'S WOES ARE ECONOMIC—MAKE YOUR CHOICE BETWEEN THE CANDIDATE WHO IS WRONG BOTH ECONOMICALLY AND SCIENTIFICALLY AND THE CANDIDATE WHO WILL RIGHT THESE WRONGS—CHANGE UNBEARABLE CONDITIONS

Every physician in the State of Illinois must go to the polls and vote on Nov. 6, or else hold himself largely responsible for and absolutely devoid of a right to protest against economic conditions entailing little less than menacing servitude of the medical profession.

Even if a man fails to agree with all the tenets and policies of former President Coolidge, there can be no dissension from Mr. Coolidge's clearly expressed dogma that:

*"Every voter ought not merely to vote, but to vote under the inspiration of a high purpose to serve the nation."*

The voice of the ballot is almost as loud as the stentorian tones of that good old-fashioned medium, "Spot cash." For spot cash, or ready money, can purchase almost any of the necessities of life, and "necessities of live" savour of the great mirage in the homes of far too large a percentage of practicing physicians today. Either their practice is being taken out of their hands by lay institutions and endowed foundations practicing medicine or, if they have kept even a small remnant of practice, the patients are unable to pay. World-wide as is the depression today, sharp as is the pinch upon the purse of every citizen, the doctor's pocketbook began to get this squeeze acutely at least fifteen years ago. Despite the danger that was pointed out in the columns of this periodical, despite the diagnosis that the trouble lay rooted in a socialistic infection spread by politics and political contacts, and that the one panacea lay in the ballot box, thousands of physicians disregarded the simple remedy for a raucous ill.

Again the Editor of this JOURNAL asks, aye, even entreats his brothers in medicine to stop, look and listen to where this trend is leading.

Economists admit that we are passing through one of the greatest crises in the history of civilization. So far it has been kept chained within the limits of economics, but those who are weather wise are dreading the hour when, if unchecked, the debauch of degeneration shall send its lesions into the very heart of science and of culture. The footprints in the trail are already marked only too plainly in the fields of the fluid sciences of which medicine is at once the sacrifice and the sacrificer.

What every doctor should do and do without hesitation is to discover which men among the hundreds striving to be elected as government of the country are the men who stand for Americanism; who are patriots first and politicians afterwards.

This is the time, as never before, when elections demand not party politics but patriots of the people.

The United States of America founded its Constitution, owes its birth to the principles of liberty, as well as to community justice. It has become the habit with fine phrasers to substitute the word "communist" for "community" and "party" for patriot."

When the doctors of this country get down to brass tacks and weigh in the balance whether it is better to spend a little thought on politics and less on protest, more on citizenship and less on complaint over spilled milk, the answer will be easy to dozens of problems confronting the doctors today.

Try it during the next fortnight. Find out who is running for office in your town, your county, your state, your country. Discover the attitude of these candidates towards these problems besetting humanity with which the physician must cope every day of his life. Decide upon the man who can best serve the purpose of the ideals of organized, scientific, self-sacrificing medicine, and let your ballot do the rest.

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**"THE RIGHT TO VOTE IS MORE  
THAN A DUTY, IT IS A  
PRIVILEGE"**

WHERE MEDICINE IS CONCERNED, IT BEGINS TO  
LOOK AS IF THE DOCTORS MUST EITHER  
VOTE FOR COMMUNITY RIGHTS OR ELSE  
BE SUNK BY COMMUNISTIC WRONGS

Again the job of voting confronts us at the election November 6.

Must the physicians of the land spend even more money, and more time, to discover that neither they nor their profession can compete with practical and practicing politicians? When will they learn the importance of paying more attention to election day—every man with an "M.D." at the end of his name who calmly sits back now and lets the country be run by those who are not "too busy to bother" with the ballot?

What economic self-preservation the medical profession has been able to achieve has not accrued from any devotion to citizenship duties, but because of the respect in which, even in this topsyturvy day, the average citizen, still holds the medical profession. Of course this same "Mr. Average Citizen" through endowed foundations is only too often trying to practice medicine himself—but—even so.

If the doctors of Illinois would attend ever so slightly to their personal citizenship duties—which is a task involving their personal participation in all elections—the result would be a near-panacea for a multitude of civic ills, that are insidiously near to eating at the very core of the essence of civilization.

It is no longer a question of a man's "getting" or "not getting into politics." Medical men must cry "Checkmate" to politics. For the politicians of the country have already grabbed hold of the very tail of the medical profession, and are literally swinging this august body of men about with as little ceremony as if it were a yellow dog!

Blinking at facts is useless. The entire trend and achievements of legislation in the past twenty years show how medicine is made the pawn of politics. In another twenty years the medical profession will find itself throttled and altogether ham-strung unless it awakens speedily to the situation. Nor does "waking up" mean that any man can do this deed vicariously. The situation is up to the individual physicians of the land. Every doctor must get to the polling place.

Each doctor must doff his toga of science sufficiently long to discover what is going on before it goes so far as to give him and his profession, and par consequence, the public health and the virility of civilization—a knock-out blow. Just as soon as physicians enter the actual arena of politics and lend their professional support



to those ethical lawyers and clergymen who are accomplishing a brave futility in the effort of getting politicians out of politics, there will be the requisite essential change in conditions for restabilizing foundations of the world's greatest democracy and even of civilization itself.

Well has it been said that the policies of one set of politicians are in force so long as "fifty and one-tenth per cent. of the votes are cast for those politicians, and the opposite policies are in force when one voter in a thousand changes his mind. It is on such extremely slight changes as these that often hangs success in any political field."

Even now, hobbled by the almost ubiquitous lethargy with which the average physician regards elections, candidates and the entire system of democratic government—physicians have far more influence than they suspect with members of law-making bodies.

Wide knowledge, good judgment, public spirit and the gift of vision are *sine quo non* with every successful man of medicine. Physicians everywhere should realize the imminent necessity for their stating to the public as well as to law-makers, not only the ideals of the profession, but the arguments for adoption of these ideals and their absolute bearing upon the health and the wealth of every country. This setting forth of principles should, if indicated, be also a going forth to war for the right—a defense of medical ideals and of the country itself.

Everybody, everywhere may not agree with some of the ideas and dicta of ex-President Coolidge. But every sane minded individual, *anywhere*, must coincide with these assertions of the nation's chief executive:

"Many of the founders of our government gave all their wealth and their lives for the right of franchise.

"The right of franchise is the right to vote.

"It is the most valuable heritage the American people have.

"The right to vote is more than a privilege.

"It is a duty.

"Our government will continue to give us the opportunity for independence and freedom only if we do our duty towards the government.

"Our duty is to go to the polls and vote intelligently.

"It is our duty to see that each member of our family, who is qualified, votes.

"It is our duty to know the records of the candidates.

"To some of them you will entrust your liberty and the protection of your property."

Again are the physicians of the country besought to take heed of the electoral situation.

## YOU MAY NOT BE INTERESTED IN POLITICS, BUT POLITICS IS INTERESTED IN YOU

IN ITS MANAGEMENT OF PUBLIC BUSINESS POLITICS GRIPS EVERY MAN'S CONTACT WITH SOCIETY AND WITH THE GOVERNMENT — PHYSICIANS CANNOT AFFORD TO IGNORE POLITICS, FOR POLITICS WILL NOT IGNORE THEM—THE QUALITY OF POLITICS DEPENDS UPON THE DEGREE OF PUBLIC INTEREST IN IT

Party politics must go under the hammer and go now. Physicians of Illinois must make count their influence for requisite legislation through the results of the next election.

There is no time to waste, elections hang over our heads. November 6 is a day of destiny. The voice of the candidate is heard in the land. So the vote of the physician must be cast for those candidates who will lend an ear to the profession as to matters affecting the medical profession and its dependent, the public health and welfare.

Ballots talk. More effective than all other oratory is the count at the polls. Let the physicians of Illinois show that this gift of electoral eloquence is not denied them by making themselves heard at election day.

The times demand that patriotism supersede partisanship. What alliance each candidate for any office has made with the insidious red propaganda springing up stout as purslane all over the land, each and every doctor should discover without any delay and judge his voting accordingly.

Doctors who think that they can dodge the perhaps tedious, but admittedly necessary task of becoming interested to the point of personal exertion in the government of the United States are mistaken. The rule holds that a man must govern his house or be governed. Apathetic physicians who are willing to submit to the despotism of money-grabbing, wire-pulling politicians may find food for thought and spur to action on November 6 in this quotation:

"There is no escaping politics. It has a bear-

ing on almost every human interest. A doctor may not be 'interested in politics,' but politics is interested in him. In its management of public business it grips every man's contact with society and with the government.

"It is impossible to be born or to die, to marry or to be divorced, without politics having to do with the matter. Every tax you pay, the smooth streets and the good roads, the public schools, the fire department, the health department, the water you drink, asylums, courts, custom houses, jails and penitentiaries, the police, the post office, every law and ordinance—all spring from government, government springs from parties, and parties are politics.

"The people can not afford to quit politics, for politics will not quit them. The quality of the politics depends upon the degree of the public's interest in it."

But the people can quit the parties and should quit any party whose candidate does not stand for the people's principles.

What better, plainer plea can be made the physician and at this crucial moment.

Remember election day, November 6.

As a guide to the voting physician let information be given on the following general principles, of interest equally to the medical profession and the general public.

We have too many laws, and too large a tax levy.

Living expense and taxes will be lowered as soon as hundreds of over-priced, interfering, recently adopted and unnecessary laws are done away with. America is mortally ill from a plague of laws and thousands of Bureaus trying to regiment all our industries as well as the life of the private individual. This evil is maintained at an annual cost per capita of \$91, and of about \$350 per family. One out of every five people in the United States who are over sixteen years of age, and who are gainfully employed, is on the public payroll. In the last few years this ratio has risen from one out of every 1,000.

There are 30 million employees on the public payroll according to the estimates of census statisticians. *This places an office-holder or "tax-consumer" on the backs of every two tax-producers.* Exclusive of pensioners there are millions of public servants whose pay comes from the ever increasing taxes. A large proportion

of this number is engaged in the administration and execution of superfluous statutes.

A similar situation crushed France and produced the French revolution. It was the bane and damnation of Germany.

*"Americans are now compelled by law to do, and prohibited by law from doing, more things than were the citizens of autocratic Europe before the war."*

We are the victims of a paternalistic regime that will eventually enslave and bankrupt the country. The *cost of government* has become unbearable. Too many functions of local and of state governments are being controlled by hidden bureaus in Washington. *There is more power exercised today in these bureaus by unknown "experts," political appointees of whispering propaganda, than by the courts themselves.*

Centralization of government, bureaucracy, state subsidies and autocratic control are a poignant menace, and a fatal growth.

Bureaucracy is a curse wherever inaugurated. In the management of medical affairs it is fatal. Germany stood at the pinnacle of medical achievement thirty years ago. Under bureaucratically administered state medicine, Germany has come to have the worst medical service in the world and the poorest care for the health of the people. It will be ruinous to the health and welfare of the United States if this system is adopted in this country.

Before the coming legislature and convening Congress there will be presented many bills, attempting to regulate incompetently the practice of medicine and needlessly to increase taxation. Many of these bills will provide for the licensing to practice medicine, of uneducated and improperly equipped men and women.

We ask no especial favors for doctors, but we believe in a single standard of education and a thorough professional training before a man or woman can be licensed to practice the healing art or to diagnose disease.

Persons who seek a license to treat human ailment in the State of Illinois should know how to make a diagnosis of disease which is essential for the conservation of the public health.

There should be no side door short cuts to the practice of the treatment of disease in this State.

Don't vote for any man unless you know his attitude towards medical legislation designed to



increase taxes and to medical legislation intended to safeguard your health and that of your neighbors and fellow citizens.

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### BEFORE ELECTION DON'T FAIL TO CONTACT CANDIDATES FOR OF- FICE BOTH LOCAL AND NATIONAL

Does anybody with even a modicum of knowledge of the average American physicians' character believe they can be cut and squared to the Soviet pattern?

What are the politicians going to do about it? What are they trying to do? It is positively apparent that no small factor in the physician's retaining his independent status will be his active interest in civic affairs. Public welfare demands that his voice be heard. Without further delay interview the candidates for office along the following lines:

"Is the man who is asking for your vote in favor of government medicine, government ownership, government banking, government meddling, government regimentation under a bureaucracy, or for a minimum of government in business, with individual opportunity and freedom from tyrannical rule by government departments and bureaus? Is he for confiscation by taxation, redistribution by demagogues, or for an opportunity for everybody and anybody to accumulate honestly and without special privilege, to work for themselves as well as for the politician and the taxgatherer? Is he for free speech and free criticism of public officials whose acts, in his opinion, call for criticism? These questions are American, not partisan. They must be considered and decided by Democrats and Republicans alike."

Liberty is not worth much if it does not insure economic liberty. Slaves once toiled and died under the flag of freedom; black slaves. Today their place, under the same flag, can be taken by the economic slave.

What will it profit the politicians at Washington who are juggling the destiny of the medical profession and the American people into regimentation and make of us all mere pawns of national government dictation?

Doctors of America, when medicine is involved, are not republicans or democrats. They

are first doctors with full knowledge of what service to sick people means. They have complete knowledge of what the needs are; they have given much thought and study to the subject of State Medicine. They are thoroughly familiar with what has happened in many countries in Europe where various systems of state medicine have been in operation for years and have finally failed.

Let every doctor in Illinois be represented in public thinking. See the candidates in your district now. That you make contact with candidates and express your opinions on medical problems is of the greatest importance.

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### THE MOST WORTHWHILE DOCTOR IS ONE WHO REALIZES THAT HE IS AN ESSENTIAL COG IN THE GREAT MEDICAL ORGANIZATION

Under present conditions no doctor can hope to succeed by considering himself only. Progress and integrity in medical practice can be brought about only by constant consideration of the importance and necessity of working in unison.

If physicians will only keep in mind the fact that whatever contributes towards the success of the profession as a profession adds to individual welfare, we will prosper individually as the profession grows in numbers and influence. To win and to retain the confidence of the people is an advantage both to the individual and to the organization.

The most *worth while* doctor today is one who realizes that he is an essential cog in the great medical organization and that individual success depends largely on the success of the profession as a whole. "The whole is greater than the part."

It is time for the medical profession to realize that an era of professional prosperity awaits only the recognition on the part of physicians both individually and collectively, that the people will trust and respect only those who respect and trust each other, and that to a like degree. Confidence and respect for medicine itself by those who practice it, and more, tolerance for fellow workers is the keynote to success in present day practice of medicine.

IN UNION THERE IS STRENGTH.

## DOCTORS, DENTISTS AND DRUGGISTS A FORMIDABLE POLITICAL POWER

There are in round numbers 170,000 physicians, 50,000 dentists and 60,000 drug stores in the United States. In the latter instance there are approximately three druggists for every drug store, making a total of 180,000 druggists. These professions, if properly organized and directed and working cohesively, can be made the greatest factor for good in the country. No legislation inimical to the best interests of the public and the professions named could be placed on the statute books with this organization working coherently. Not a home in the State or Nation that is not reached by some Doctor during the course of the year; perhaps not an individual in the Nation who is not met face to face and engaged in personal conversation by one of the three professions in a given twelve months.

What a power if organized would be the doctors, dentists and druggists of the United States in combating medicinizing socialization schemes. regimentation of the profession, government dictation and practice of medicine, government in every kind of business and profession, schemes for health centers, clinics, compensation laws, health insurance, Sheppard-Towner Maternity Acts and in heading off Federal interference in medical practice by such menaces as the regrettable maternity bill and the other fifty-seven varieties of attempts to bring about State Medicine.

## EVERY ONE OUT OF EVERY FOUR PERSONS ARE IN WHOLE OR IN PART ON GOVERNMENT SUPPORT

According to the *Tribune* press service one out of every four persons in this country is in whole or in part dependent on government support in relief, subsidies or salaries.

"Our per capita federal indebtedness is now \$214," the bank declares. "The aggregate public debt, including federal, state, county and municipal, is approximately 43 billion dollars, or \$344 per capita. In 1913, this overall public debt was only \$50 per capita.

"It is time to give serious consideration to the following facts: In the twenty years from 1913 to 1933, on a per capita basis, taxes have increased 200 per cent., governmental costs have increased 300 per cent., the public debt has increased 600 per cent. and income has decreased 7 per cent."

## MEDICAL ECONOMICS AND MEDICAL ETHICS

The problem of Medical Economics is a part of our whole economic problem and any attempt to separate it from the whole economic and social problem leads us at once into difficulty. Every attempt to set any fundamental difference has failed, and those individuals in the past few years, especially just preceding the depression and even the few who yet assume that the practice of medicine should be partially or wholly socialized, and who thought that this could be accomplished as a separate economic and social unit must, at last, begin to see clearly that socialization of one unit is not possible without it having a definite tendency to socialize all of the other units in our social and economic structure. If we are to develop in the human race the thought that they have the right to nibble at the public crib for any one part of the necessities of life of which medical care is certainly one, we can not expect them not to assume their right to reach for total subsistence at that crib. The chocolate-coated interpretation that medical service belongs to a separate unit because it is more humanitarian than other units of our social and economic structure is an awkward argument because food, clothing, and shelter are just as necessary from the humanitarian point of view, and may even be more so in that the lacking of them may be a leading factor in the production of disease.

If the press of the country are against the New Deal in this tendency to social legislation they should come to the aid of the profession in their fight against socialization of medicine, and also lend their vigorous support to the maintenance of the highest standard of Medical Ethics.

The ethics of every profession and every business must be safeguarded; first by that profession or business itself, and then by public support, just as the freedom of press must be upheld by public demand.

There would be few economic problems in medicine if the highest standard of Medical Ethics could be maintained. The major portion of our economic problems are the direct outgrowth of the drifting away from the high standard of ethics by the members of the profession themselves. There are many factors which have contributed to this.



The growth of our country beginning about 1812 from almost an entirely agricultural country to the highest industrialized nation has made it almost necessary for certain changes to take place in the practice of medicine in various localities throughout the country. That some of these outgrowths are actually necessities cannot be denied, and that many of them have grown into pernicious evils is also evident. I think that we are all willing to admit this growth has been gradual, but at all times progressive. This includes the development of contract practice in its various forms, insurance practice in its various forms and the development of clinics, charity in the form of part paid institutions, and dispensaries of various types. In this series of changes there has been the gradual tendency to get out of line with the highest ethics of the profession. It is only natural that every individual approaches the matter of ethics from a viewpoint somewhat of his own and it is quite likely to be somewhat selfish. While this affects only a small portion of the profession it has had a tendency to create changes in medical practice that seem difficult of solution at the present time. The solution of our problems in Medical Economics, while covering many intricate factors, may be said to depend largely upon the maintenance of our highest standard ethics, and better organization in the medical profession, and also by a better educational program to the public that they may realize the importance of maintaining the high standard of Medical Ethics and also the importance of not allowing the socialization of medicine to occur because it will only be the forerunner of other forms of social legislation that will be equally injurious to the general welfare of the public.

Dr. R. K. Packard, Chairman of Council of Illinois State Medical Society.

#### A GOOD DIAGNOSTICIAN

An inquisitive small boy was watching an old colored woman trying to put her baby to sleep.

"Auntie," said he, "did you raise that baby on the bottle?"

The old woman replied: "Yes, I raised dis chile on de bottle."

The little boy thought deeply for some minutes, and then he remarked: "Auntie, wasn't it an ink bottle?"  
—*Exchange.*

## Correspondence

### THE DOCTOR AND HIS POLITICS

The "New Deal" has probably created more profound public interest than any other peacetime venture in the history of this nation. Many people believe that Washington is saddling upon the nation a lot of strange, new, untried theories plucked full fledged from the fertile imagination of a small clique of academic minds.

If such things could be photographed you would see in the New Deal program a perfect picture of what political leaders believe, and with good reason, was formulated in the composite public mind. Politicians never create. They always crystallize. Their business is to discover dominant currents of public thought and translate them into law and practice.

If Congress or the State legislative bodies were mirrors you would see reflected the perfect working of the public mind. When minority opinion prevails it reflects inertia and indifference in the majority. In their home districts where votes are cast, politicians are superlative listeners, the best and most sensitive in the world.

For this reason physicians are in a peculiarly strategic position to exercise an important and usually a determining influence in the character and trend of legislation, particularly on matters relating to medicine. As a political force, the organized medical profession does not claim great power and could not very well be otherwise. As individuals the physicians can and should be powerful factors in those political matters which influence the practice of medicine from the standpoint of patient, public, and doctor.

We are on the eve of an election. In November will be returned to Springfield every member of the lower house and one-half of the Senate. All Congressmen must stand for election.

In order to exercise his right of franchise intelligently and to perform his duty to himself and community every physician in Illinois should make it a point to meet and get acquainted with every candidate for the State and national legislatures. He should communicate to these candidates his opinions concerning medical matters that are apt to be up for legislative consideration. A ten minute chat with a candidate prior to election and under favorable circumstances is worth more in moulding his attitude on leg-

islative matters than a dozen delegations of lobbyists after the General Assembly convenes.

Physicians are intimately acquainted with many people. This gives to them a particularly advantageous approach to political leaders. By using this advantage the physician can obtain a sympathetic hearing that will have a powerful influence over the crystallization of thought in the minds of legislators.

Your Legislative Committee wishes to urge upon you the duty and responsibility that is yours in respect to political matters. How or for whom you vote is relatively unimportant so far as party alignment is concerned. Your political faith, so far as parties are concerned, is a matter of indifference to your Committee. That you make contact with candidates and express your opinions on medical problems is of the greatest importance, however.

Moulding legislative thought by contact with candidates is an opportunity, a privilege, and a duty of every physician. In this way he can do important constructive service in building the governmental structure on a sane, firm foundation. Criticizing politicians and bewailing government activity after new laws have been enacted is the poorest way known to correct undesirable trends much less to prevent evil legislation.

Get your picture in the legislative mirror! Let every doctor in Illinois be represented in the public thinking. See the candidates in your district now. The Chairman of your Legislative Committee will, upon request, furnish you with the names and addresses of the nominees in your district for the Legislature and Congress.

Physicians as well as the public are aware of the many articles appearing in the daily press and current periodicals advocating the subsidizing of the medical profession, one of the most recent being "A Plea for Socialized Medicine," in the September issue of "Mercury," written by George W. Aspinwall, which the editor says is the pen name of an eminent New York physician. Silence and apathy on the part of the individual physician to such propaganda will be construed by the lawmakers as an approval of the medical profession.

Yours very truly,

J. R. NEAL, M. D.,  
Chairman Legislative Committee.

## AN EDITOR ERRS

In the August issue of the *ILLINOIS MEDICAL JOURNAL* there appears a rather vituperative editorial whose theme is the report of our Committee on Economics. The brunt of the attack is directed against Mr. Sinai, director of study, and spreads out into an attack on the Michigan State Medical Society and the University of Michigan.

Mildly we call attention to the breach of ethics involved in one unit of organized medicine making, through its official publication, such a vicious attack on another unit, especially at a time when if ever organized medicine should pull together. More emphatically Michigan resents the report of the Committee on Economics being styled "Sinai's Health Scheme." It resents for Mr. Sinai the suggestion that he is controlled by the Milbank Fund, and that somehow he has managed to insinuate himself into a position of control of not only the Medical Economics Committee, but the Michigan State Medical Society. The acceptance of this as a fact, or as even a partial fact, would place the members of the Economics Committee in the position of being either mentally incompetent or figureheads and our House of Delegates as acquiescent. Our Committee on Economics unquestionably represents as high a grade of mentality as is to be found in the Michigan profession or in any other state. Naturally they required a director of study but at all times The Committee dominated the situation.

We do not at all object to a criticism of the plan. It would be equally proper to question the basic facts as presented, certain though we are that they can be substantiated. Doctor Whalen should know that the plan as presented has not been accepted by the Michigan State Medical Society. It will be presented to the House of Delegates as this *JOURNAL* goes to press. There is a difference of opinion among the profession of Michigan as to the advisability of placing this plan in operation. There is a question in the minds of some of us as to whether the plan is practical, but the point is that with great sincerity and with the free expenditure of Society funds, Michigan has attempted to do a bit of constructive work. The evidence is conclusive that Michigan has had the vision to foresee coming events. We would wish that other states



might do a similar bit of research if only to serve as controls of Michigan's results.

There is an old adage that people in glass houses should not throw stones. Michigan is proud of the cleanliness of its profession. We are pleased that we remain singularly free from the type of medical practice which is prevalent in states which, like Michigan, have a large center of population. Rank commercialism by groups and individuals with exploitation through the newspapers is now, and has been, rare in Michigan, not unheard of it is true, but perhaps less at this period when other states are having a great increase in this sort of thing, than at any time in Michigan's history.

B. R. CORBUS.

### THE INSURANCE COMPANY PROBLEM Chicago, Sept. 27, 1934.

*To the Editor:*

In the August 4 *Bulletin* of the Chicago Medical Society the article "Fees from Insurance Companies," by Leslie W. Beebe, is so interesting that every physician should read it. I have personally known of a number of physicians who have accepted checks from insurance companies much reduced from their original charges, under the impression that the insurance companies, under some law of Employers Liability Compensation, had a right to fix price schedules. They demand certificates of report of patient's condition, without any recompense for such time consuming, record scanning effort. But I wish to especially point out the fact that I claim a priority of a similar occurrence. I contributed an article to the *ILLINOIS MEDICAL JOURNAL*, but to my great surprise on looking for the *JOURNAL* it was lost. I had also forgotten the exact title, the month of publication and the year. My *JOURNAL* was lost, but I finally located the article published 21 years ago. How? In the *ILLINOIS MEDICAL JOURNAL*, 24: 181, 1923, a letter entitled "Contract Practice," dated August 15, 1913. I treated an employee of Louis Verick who was injured. The bill sent to employer was turned over to the Standard Accident Insurance Company, 175 W. Jackson Blvd., Chicago, Ill. The company sent an agent stating "their fees" and offered as payment \$35.00. Same was declined. I ordered the agent out of my office, stating that I did not recognize the insurance company; my dealings were with the employer.

I then informed Verick that I would file suit against him, in which case the insurance company would have to defend him—that I refused to recognize the insurance company and that I and not the insurance company put a price (within reason) on my labor. Shortly thereafter I received a check for full amount of \$44.00. I have here quoted extracts from the letter. Anyone interested may find the whole in the above named *JOURNAL*.

I had this experience twenty-one years ago, and now one lonely doctor—Doctor Leslie W. Beebe—had to fight this matter through the courts as I assume with considerable expense, annoyance, loss of time and a job the Chicago Medical Society should have done more than twenty-one years ago. And now, in the September number of the *ILLINOIS MEDICAL JOURNAL*, on page 213, comes another correspondence entitled "Another Chiseling Insurance Company," signed by Ray B. Essick, M. D. May I suggest that physicians demand that the various medical societies in the State make an investigation of chiseling insurance companies and scab doctors in their employ treating union men employees.

DR. JOHN KERCHER.

6850 Dorchester Ave.

### A COMPLIMENT FOR THE JOURNAL FROM A CONNOISSEUR OF MEDICAL LITERATURE

Chicago, Sept. 1, 1934.

*Dear Editor:* My reading of European and American medical journals dates back fifty-odd years. I have never seen an issue so replete with valuable information as the August issue of the *ILLINOIS MEDICAL JOURNAL*.

Congratulations on your efficiency.

EDWIN J. KUH, M. D.

30 N. Michigan Blvd.

### THE PLAYFUL ASS—BY AESOP

An ass climbed up to the roof of a building and, frisking about there, broke in the tiling. The owner went up after him and quickly drove him down, beating him severely with a thick wooden cudgel. The ass said, "Why I saw the monkey do this very thing yesterday, and you all laughed heartily, as if it afforded you very great amusement."

Those who do not know their right place must be taught it.

—*Aesop's Fables.*

Therein resides a moral, a lesson, and a guide to continued future action for organized medicine in Indiana. We dare not relent.

Still fresh in our memories are the monkey activities of a small group of misguided M.D.s and uninformed Ph.D.'s, when, backed by five million idle dollars seeking notoriety, they published their illusionary book, "The Cost of Medical Care." This proposed guinea-pig experiment in regimenting and socializing the practice of medicine failed ingloriously. Manifestly not for the public weal and contrary to long-established ethical principles, the profession presented an almost united front in opposition. In this, Hoosier Medicine played a prominent part.

Even more recently, last June, a small coterie or bloc of Men in White, members of the American College of Surgeons, exploding prematurely in over-distended egoism and unwarranted importance, broadcast an abortive attempt to fasten upon us the many-armed octopus of medical insurance. The repercussions still are rumbling. Ninety-eight Indiana members of the College have signed a round-robin protest. Other sections are being heard from. With Lexington and Concord in mind, the rank and file of the profession are on the alert, endeavoring to avoid surprise from within or without.

Our own Indiana State Board of Medical Registration and Examination has taken a forward step in ruling that the administering of an anesthetic is in deed and in fact the practice of medicine, thus correcting an infringement and restoring to the profession their property rights as guaranteed by the Constitution of the United States. The Attorney General has confirmed this decision. Too long have we been educating lay persons to carry on duties which rightly belong to and should be performed by those who have an especially emphasized training in medicine. The above principle of property rights often is involved in the fields of public health, tuberculosis, physiotherapy, roentgenology, pathology, and, perhaps, in corporate and hospital practice.

Last November we elected to represent us in our State Legislature a body of men in whom we reposed our trust for constructive legislation to bring order out of chaos. The record is open before us. Too many could not say "no." Too many performed experimental monkey-shines on the roof, dislodging the protective tiling, and thus exposing their constituents to the ravages of a downpouring rain of leftist experiments. The Hoosier medical profession must exert its

nonpartisan utmost next month to correct this situation. We must strengthen every beam and support of our professional fabric, otherwise it will not be said of us: "And the rain descended, and the floods came, and the winds blew, and beat upon that house; and it fell not, for it was founded upon a rock."

All of which would be sad.

October, 1934.

I. S. M. J.

#### CATHOLIC HOSPITAL ASSOCIATION RESOLUTION

Excerpts from the Resolutions unanimously adopted at the closing meeting of the Catholic Hospital Association of the United States and Canada at its Nineteenth Annual Convention, Cleveland, Ohio, June 22, 1934:

*Be It Further Resolved*, That this Association again hereby proclaim its adherence to the principle that medical and hospital practice must rest upon a personal relationship between the patient and physician, which relationship implies moral obligations; that, therefore, under the usual conditions of medical practice the patient's right to choose a physician, qualified legally, professionally and morally, must not be curtailed; that, therefore, this confidential relationship between patient and physician be deemed a necessary basis for good medical practice; and that finally our hospitals commit themselves to the formulation and administration of only such hospital policies as are consistent with the maintenance of this fundamental personal relationship.

*Be It Further Resolved*, That this Association hereby restate its adherence to the principle that the medical profession must be recognized as pre-eminent in any methods of medical practice and service; that, therefore, the medical profession must be accorded predominant influence in the medical activities of all institutions giving health and sickness care and that, therefore, the hospital members of this Association commit themselves to the policy that the rights, duties and privileges of the medical profession be considered directive and authoritative in hospital science and service.

*Be It Further Resolved*, That this Association, while it deems a careful and cautious study of the methods of affording relief to the low income classes as worthy of the fullest encouragement yet hereby again repeats its warning previously issued on more than one occasion against facile and ill considered schemes which ignore acceptable basic principles and can not, therefore, but be harmful to society; that it again call attention to the danger to the nation's health and welfare arising out of the many projected plans for group hospitalization, hospitalization insurance and other similar schemes through which, in many cases, the commercial ambitions of individuals rather than the social and economic and hygienic good of national and other social groups are furthered.



## EDUCATIONAL COMMITTEE

Report for August and September, 1934

## SPEAKERS' BUREAU:

20—Programs were arranged for lay organizations, including three talks on Sex Hygiene given for the men and boys of the Cook County Service Bureau for Transients.

135—Lectures have been scheduled for A Century of Progress. These lectures were sponsored by the Chicago Medical Society but were arranged through the office of the Committee.

HOME BUREAUS of various counties with the supervision of the Extension Department of the University of Illinois are undertaking programs of education on care of the feet and posture. The Committee believes that doctors should be as interested in the foot problems of the public as in their other health problems, and for that reason we are cooperating with the Home Bureau in sponsoring programs in about ten counties of the state. These talks on FEET and POSTURE will be given by men particularly interested in orthopedics.

## PRESS SERVICE:

774—Articles were sent out in the regular service to papers using health column over signature of local county medical society.

40—Releases to newspapers in the monthly health article service.

47—Releases re lectures at Navy Pier sponsored by the Chicago Woman's Club and women physicians of Chicago.

54—Notices to newspapers re Madison County Medical Society meeting.

69—Releases to newspapers of Iroquois County Medical Society meeting.

48—Press releases re Perry County Medical Society meeting.

75—Press releases of DeWitt County Medical Society meeting.

109—Releases LaSalle County Medical Society meeting.

16—Health articles written and approved by the Committee on the following subjects: Some of the Dangers of Self-Treatment, The Mosquito Problem, Life Begins At Forty or Later, Some Mistaken Beliefs, Self Doctoring, Keeping Fit the Year Around, Rheumatism and Rheumatic Heart Disease, Diabetes Today, Prepared for School, Hay Fever, Hay Fever-Suggestions to Sufferers, Role of Infection in Nervous Breakdown, What Poison Are You Taking, Epidemic Encephalitis, Modern Care of the Physically Handicapped, The Pituitary Gland.

Newspapers are anxious to have the news items of medical society meetings and this offers a splendid means of keeping organized medicine before the public. Such publicity costs nothing and yet develops public sentiment.

## RADIO:

34—Health talks were given over radio stations WJJD and WAAF. Programs will be resumed from station WGN about the first of October.

## LIBRARIES:

405—Articles were sent to 45 Chicago Branch libraries for posting.

562—Articles were sent to 50 downstate libraries for use on bulletin boards.

9—Health education articles were sent to American Red Cross Headquarters, Chicago.

9—Health education articles sent to Central Y.W.C.A., Chicago.

Comments from Librarians Concerning this Service:

Northwesttown Library, Chicago — "Thank you so much for all the interesting literature you have sent to us. Our public as well as my staff find them very instructive."

Mt. Vernon—"We shall be glad to give your articles space on our bulletin board. We feel sure that our patrons would be interested in reading them."

Sycamore—"Please put our library on your mailing list to receive the health material you have been supplying Cook County libraries. We will be glad to receive this material as we think our Mothers' Club can make good use of it."

Vandalia—"We thank you for the bulletins on scarlet fever and measles. They came at an opportune time, since both diseases have been prevalent in this section for a long time. We shall receive gladly any article, or articles, which you may send and file them for use."

Sterling—"I appreciate very much the material sent us for posting on our bulletin boards and will be very glad to be placed on your mailing list to receive material regularly. Your service seems to me to be a worthwhile help to the community."

Broadway Branch, Chicago—"The articles are most interesting and timely. They will be useful not only for the bulletin board but also for our pamphlet collection. I will be glad to have you place us on the mailing list."

Oak Park—"We are very grateful for the State Medical Society articles sent us and will use them on the bulletin board. We will be glad to have you place this library on your mailing list for these articles."

Sherman Park—"I think these short health articles are very good and interesting to the laymen and will be excellent material to place on our bulletin board. We will be very glad to post them at any time. Communities like these need more simple instruction in health and hygiene."

## CONTACTS:

Doctor Harriet Day Chandler of Decatur has been appointed Chairman of Public Health and Child Hygiene of the Illinois Federation of Women's Clubs. She is working with the Educational Committee and is conferring with the Secretary concerning her plans and programs. The Committee will assist her in arranging the monthly programs for the District Chairmen of this department.

Miss McArthur was asked to appear before Superintendent Bogan and all Assistant Superintendents of Chicago Schools in the early summer. It is hoped that through this effort an opportunity will be given the Committee to work more definitely with the schools in presenting suitable health programs. Some work has been done in the past, this will be enlarged upon.

During the summer the Committee has been asked to explain its methods of work and its program to medical societies with headquarters at Washington, D. C., Wooster, Ohio; Schenectady, New York; and Ames, Ia.

#### SPECIAL SERVICE TO GROUPS:

The Committee has assisted the following county society secretaries in mimeographing, addressing and sending out notices to members:

Randolph	Jackson
LaSalle	Perry
Jefferson-Hamilton	Kankakee
Bureau	Henry
Livingston	Monroe
Franklin	

The Committee has furnished publicity for meetings of the following county medical societies:

LaSalle	Whiteside
Fulton	Jefferson-Hamilton
Southern Illinois Medical Association	
Chicago Medical Society and its Branches.	

DeWitt	Franklin
Perry	Monroe
Winnebago	Randolph
Jackson	McLean
Madison	

The Committee office has mimeographed all the program material for the Public Health and Child Hygiene Chairman of the Illinois Federation of Women's Clubs.

Special material has been compiled for members of the Woman's Auxiliary. Articles have been copied and prepared for publication in the Auxiliary News in the Illinois Medical Journal.

Mimeographed minutes of Board and Annual meeting of the Woman's Auxiliary and list of officers of the Auxiliary.

PACKAGE LIBRARIES to doctors, doctors' wives, university students, and women's clubs. Some of the very small clubs of the state, particularly the young mothers' clubs, are very glad to have the radio talks approved by the Committee for use at their meetings. These are read by members and take the place of speakers.

#### SCIENTIFIC SERVICE:

13—Scientific Programs were arranged for county medical societies.

The Committee has been asked to arrange weekly or monthly programs for the following scientific groups:

Paris Hospital, Will-Grundy County, Fulton County, Rock Island County, LaSalle County.

the work has increased and the force of three workers has been reduced to two.

Respectfully submitted,  
Jean McArthur, Secretary.

#### SUFFICIENT RADIUM TO PRODUCE RESULTS

The following resolution was presented by the Executive Committee and adopted unanimously by the American Radium Society, Cleveland Session, June 12, 1934.

WHEREAS, it has been proven that radium and X-rays, when used properly, and in sufficient quantity, is efficient in the treatment of cancer in certain locations, and

WHEREAS, there is a general fear in the public mind from X-ray or radium burns, which because of this fear, prevents competent radiologists from using sufficient radium or X-ray to produce the best results.

*Be It Resolved* that we as radiologists recognize that in the treatment of malignant disease, it is often necessary to carry the treatment on to the extent of producing a violent reaction in the surrounding tissues, which may cause the skin to peel, and blisters to form, in order to give sufficient treatment to overcome the malignant disease. We believe, therefore, that it is justifiable to produce a second degree radiodermatitis when necessary.

#### THE INDISCRIMINATE USE AND RENTAL OF RADIUM

Resolutions adopted by American Radium Society at Annual Meeting, Cleveland, June 12, 1934; also adopted by American College of Radiology, June 12, 1934.

WHEREAS it is now recognized that radium has been demonstrated to be of definite value in the treatment of disease, and

WHEREAS some States and many communities in the country have little or no radium available, and

WHEREAS funds are not always available for the purchase of suitable preparations of radium for use by those physicians who are qualified in radium therapy, and

WHEREAS we recognize that radium is an agent quite as potent for doing harm as for doing good when used without sufficient skill or training and with the hope of protecting the uninformed public from serious and irreparable injury from improper and insufficient treatment.

*Be It Resolved* that we consider it improper, unethical and detrimental to the science of Radiology and to the good of suffering humanity for commercial laboratories to attempt to give advice or directions as to the use of radium in the case of a patient whom the person giving that advice has not even had the opportunity to examine. In other words, it is just as difficult to give such advice and directions as it would be for a surgeon to give directions for the use of rented surgical instruments so that an untrained physician might attempt an operation. Various commercial companies advertise both in the Journals and through the mails, medical advice for the purpose of making sales or renting radium or radon. This places these corporations in the field of practicing medicine.

The Committee is keeping within its reduced budget of \$750 a month and hopes to continue to do so although



*Be It Resolved* that the same criticism be applied to institutions which rent or furnish their radium to those members of their Staff or outside of the Staff who are unskilled in radium application.

*Resolved* that the same criticism applies to many individual owners of radium.

*Resolved* that we regard the approval of the National Board of Radiological Examiners as the minimum standard for those assuming the responsibility for using radium. We recommend as wide publicity of this Board's existence and approval as is possible to the public, consistent with ethical practices, as the most effective safeguard which can be afforded them.

*Resolved* that we recommend the refusal of advertising matter in National and State Journals when the companies concerned are advertising a Medical Consulting Service or are advertising such service through the mails in connection with their sale or rental of radium.

*Resolved* that we disapprove of any doctor's acting as a Consultant to a commercial company carrying on such a campaign of public or private advertising and that we consider such an association sufficient grounds to warrant disbarment from the approval of the National Board of Radiological Examiners.

*Resolved* that we recognize the ethical commercial company as a necessity. It is the advertised Consulting Service that is at fault. It is recognized that such restrictions on the advertising of a Medical Service will in no way hamper properly qualified Radium Therapists in obtaining adequate supplies of radium or radon for the purposes in which they are qualified to employ it.

*Resolved* that we approve an informal Medical Consultant for the guidance of those commercial companies who refrain from advertising such professional service, either publicly or privately and that in such case their informal Consultant be one approved by the National Board of Radiological Examiners.

#### ETIOLOGY OF THE 1933 EPIDEMIC OF ENCEPHALITIS

Ralph S. Muckenfuss, St. Louis; Charles Armstrong, Washington, D. C., and L. T. Webster, New York (*Journal A. M. A.*, Sept. 8, 1934), limit their studies to the etiology of encephalitis that occurred in epidemic form in the 1933 outbreak. Investigations into the etiology of the 1933 outbreak of encephalitis may be said to have begun before the nature of the disease was recognized or the onset of an epidemic was suspected. A number of strains of a virus that seems to be the etiologic agent of the 1933 epidemic of encephalitis were isolated in two different laboratories. This virus acts on monkeys and white mice and is distinct from other previously known viruses. The number of strains of similar characteristics isolated, and the neutralization of the virus by serum of persons convalescent from encephalitis in this epidemic, but not by the serum of persons recovered from other diseases, justify the conclusion that it is the etiologic agent of the recent epidemic.

#### EPIDEMIOLOGY OF EPIDEMIC ENCEPHALITIS, ST. LOUIS TYPE

In discussing the epidemiology of the St. Louis outbreak of epidemic encephalitis, J. P. Leake, Washington, D. C.; E. K. Musson, Jefferson City, Mo., and H. D. Chope, St. Louis (*Journal A. M. A.*, Sept. 8, 1934), state that the type of the disease was unlike that in the sporadic cases of the Economo disease but very much like type B of the Japanese outbreak in 1924, and almost exactly like the Paris, Ill., outbreak of 1933. The cases were fairly accurately and completely reported. The case rate for the entire area was 100 per hundred thousand—69 per hundred thousand for the city and 212 per hundred thousand for the county. There was no predilection by sex or race. There was a striking increase in both incidence and fatality rates with age. The fatality rate was higher in the city than in the county. The incubation period in different cases showed a variation between nine and fourteen days, with possibly wider limits. There was a notable rarity of multiple cases in the same family and of obvious contagion between cases. Between communities the spread was obviously by human contagion; but as regards persons, individual susceptibility, in which age played a part, appears to be more important than contagion. The disease appears to be limited seasonally in its typical form. Water supply and milk supply were eliminated as possible mediums of transmission. Entomologic experiments with the mosquito as a possible vector were negative.

#### PYLORIC OBSTRUCTION

M. Feldman, Baltimore, observed pyloric obstruction in slightly more than 0.01 per cent of all gastro-intestinal roentgen examinations and in approximately 10 per cent of all organic lesions involving the pyloroduodenal outlet. Roentgenologically, it is not always possible to distinguish between ulcer and carcinoma in cases of pyloric obstruction. Gastric dilation and the degree of gastric retention cannot be considered an aid in the differential diagnosis between ulcer and carcinoma. There is no roentgenologic basis for the assumption that a dilated stomach is more likely to be due to a benign obstructive lesion or that an obstructive normal sized stomach may be due to a malignant disease. The presence of a tumor mass is an important sign of a malignant condition, but this, too, is not always demonstrable. The roentgen examination, though extremely important in the diagnosis of this complication, must be considered together with other factors in order to establish the final diagnosis.

#### UNNECESSARY LETTER

"Well," said a dictatorial man after a long dissertation during an argument, "that seems to be the general impression that prevails among the masses."

"I'll have you understand, sir, that I am not one of the masses."

"I know that," said the other, getting up. "I prefixed the 'm' merely out of consideration for your feelings!"

## ILLINOIS HOSPITALS APPROVED FOR INTERNSHIPS

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ILLINOIS MEDICAL JOURNAL

October, 1934

Name of Hospital	Location	Control	Capacity	Free and Part Pay	Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service (17)	Outpatient Service	Autopsy Percentage	Salary Per Month
Alexian Bros. Hosp. (male patients only)	Chicago	Chrch	285	48	52	3,014	Mixed	7	12	July	None	20	\$40
American Hospital	Chicago	Indep	170	20	80	1,729	Rotating	4	12	Jan.	None	39	No
Augustana Hospital	Chicago	Chrch	375	34	66	4,393	Rotating	10	18	Jan. & July	Req	21	No
Chicago Memorial Hospital	Chicago	Indep	108	86	14	1,867	Mixed	4	12	July	Req	57	No
Columbus Hospital	Chicago	Chrch	182	85	15	2,939	Rotating	4	12	July	None	81	\$25
Cook County Hospital	Chicago	Co	3,300	100	..	63,018	Mixed	96	18	Jan. & July	None	18	No
Edgewater Hospital	Chicago	Indep	140	..	..	2,943	Rotating	5	12	Jan. & July	None	24	\$10
Englewood Hospital	Chicago	Indep	135	..	..	1,989	Rotating	4	12	Jan. & July	Req	19	No
Frances E. Willard Hospital	Chicago	Indep	140	96	4	2,329	Rotating	6	12	Jan. & July	None	16	No
Garfield Park Community Hospital	Chicago	Indep	228	22	78	2,757	Mixed	5	12	Jan. & July	Op	22	No
Grant Hospital	Chicago	Indep	271	50	50	4,523	Rotating	7	12	July	Req	23	No
Holy Cross Hospital	Chicago	Chrch	109	29	71	2,511	Rotating	3	12	June	None	34	No
Hospital of St. Anthony de Padua	Chicago	Chrch	265	10	90	3,342	Rotating	6	18	(1-c)	None	19	\$10
Illinois Central Hospital	Chicago	Indus	276	37	63	3,605	Mixed	8	12	(1-c)	Req	22	No
Illinois Masonic Hospital	Chicago	Frat	175	22	78	2,376	Mixed	6	12	July	Req	23	No
Jackson Park Hospital	Chicago	Indep	265	..	..	2,689	Rotating	10	12&18	Feb. & July	Req	28	\$10
Lake View Hospital	Chicago	Indep	140	19	81	1,662	Rotating	4	12	July	Req	15	\$25
Lutheran Deaconess Home and Hospital	Chicago	Chrch	214	18	82	3,114	Mixed	5	12	July	None	21	\$15
Lutheran Memorial Hospital	Chicago	Chrch	205	..	..	2,167	Mixed	4	12	July	Req	22	\$10
Mercy Hospital	Chicago	Chrch	395	34	66	4,902	Mixed	12	12	July	Req	16	No
Michael Reese Hospital	Chicago	Indep	629	82	18	11,535	Rotating	34	12&24	Jan. & July	Op	49	No
Mother Cabrini Memorial Hospital	Chicago	Indep	168	94	6	2,502	Rotating	4	12	Jan. & July	None	39	\$25
Mount Sinai Hospital	Chicago	Indep	204	44	56	4,526	Rotating	8	12	July	Op	33	No
Norwegian-American Hospital	Chicago	Indep	180	8	92	2,707	Rotating	6	12	Apr. & July	Req	29	\$20
Passavant Memorial Hospital	Chicago	Indep	250	6	94	3,513	Mixed	6	12	(1-r)	Yes	60	No
Presbyterian Hospital	Chicago	Chrch	462	72	28	9,365	Mix. & Str.	27	12&18	(1-d)	Op	47	No
Provident Hospital (Col.)	Chicago	Indep	150	..	..	1,967	Rotating	6	12	(1-o)	Req	40	No
Ravenswood Hospital	Chicago	Indep	192	..	..	4,686	Rotating	5	12	June & July	Op	20	No
Research and Educational Hospital	Chicago	State	382	100	..	6,282	Rotating	12	12	July	Op	76	No
Roseland Community Hospital	Chicago	Indep	133	30	70	2,658	Rotating	3	12	July	Req	16	\$15
St. Anne's Hospital	Chicago	Chrch	290	53	47	4,860	Rotating	7	12	June	Req	27	No
St. Bernard's Hospital	Chicago	Chrch	230	39	61	3,629	Rotating	6	12	July	None	16	No
St. Elizabeth Hospital	Chicago	Chrch	299	27	73	3,746	Mixed	7	12	July	Req	15	No
St. Joseph Hospital	Chicago	Chrch	200	14	86	2,542	Rotating	7	12	Apr. & July	Req	20	No
St. Luke's Hospital	Chicago	Indep	714	25	75	8,371	Rotating	24	12	(1-e)	Req	37	No
St. Mary of Nazareth Hospital	Chicago	Chrch	200	12	88	3,956	Rotating	5	12	July	None	15	No
Swedish Covenant Hospital	Chicago	Chrch	210	34	66	2,180	Rotating	5	12	March	Op	35	\$10
University Hospital	Chicago	Indep	121	31	69	1,394	Rotating	4	12	(1-e)	Req	57	\$15
University of Chicago Clinics	Chicago	Indep	408	94	6	5,430	Straight	30	12	(1-c)	Req	76	No
Washington Boulevard Hospital	Chicago	Indep	110	..	..	1,612	Rotating	6	18	(1-f)	Req	23	No
Wesley Memorial Hospital	Chicago	Chrch	250	43	57	3,812	Rotating	6	12	Jan. & July	None	42	No
Women and Children's Hospital	Chicago	Indep	125	..	..	1,840	Rotating	5	12	Jan. & July	Req	60	No
Woodlawn Hospital	Chicago	Indep	172	..	..	2,820	Rotating	3	12	Jan. & July	None	18	No
St. Mary's Hospital	East St. Louis	Chrch	296	54	46	2,954	Rotating	5	12	July	None	18	\$25
Evanston Hospital	Evanston	Indep	271	60	40	4,704	Rotating	12	12	(1-c)	Req	66	No
St. Francis Hospital	Evanston	Chrch	350	61	39	4,649	Rotating	8	12	July	None	38	\$25
Little Company of Mary Hospital	Evergreen Park	Chrch	174	52	48	3,252	Rotating	3	12	June	Req	16	\$25
Oak Park Hospital	Oak Park	Chrch	165	12	88	3,593	Rotating	6	12	(1-c)	Req	22	No
West Suburban Hospital	Oak Park	Indep	427	7	93	5,040	Rotating	10	12	July & Oct.	Req	39	No
St. Francis Hospital	Peoria	Chrch	330	39	61	5,444	Rotating	4	12	July	None	24	\$20
St. Mary Hospital	Quincy	Chrch	215	85	15	2,963	Rotating	3	12	July	None	16	No
St. Anthony's Hospital	Rockford	Chrch	215	..	..	2,921	Mixed	1	12	July	None	28	No
St. Anthony's Hospital	Rock Island	Chrch	168	67	33	2,307	Mixed	1	12	July	Op	20	\$25



## Original Articles

### TEN YEARS OF PROGRESS IN THE TREATMENT OF FRACTURES

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BOSTON, MASS.

Mr. President, Members of the Society and Guests: I shall undertake to say something about ten years of progress in the treatment of fractures.

We have made progress, much as there is to do. If we pause to take account of stock, it is in no vainglorious mood, but rather to ask ourselves how much we are certain of—how much we are ready to say is sound doctrine fit to preach in highways and byways, how much ephemeral, experimental, personal?

No one will undervalue sheer personal skill, or the advantage of highly specialized entourage, but what we must value is a fund of knowledge applicable to fracture treatment for the whole country. And that is not easy to evaluate or to teach in useful form.

Before coming to changes in the specific handling of this, that, or another lesion, let us take up briefly several of the broader changes—of ten years—not only in technic, but in point of view.

First in consideration, as it is first in fact, is the immediate handling of accidents, the ambulance handling of fractures. That is a matter of importance. During the war we learned the lesson: "splint them where they lie," and then we forgot it. Only within the last two or three years has anything coordinated been done in this respect. The Fracture Committee of the American College of Surgeons, the Red Cross, the Highway Commissions have wakened up and we are entering on an era in which I think we can give better treatment to fractures just after they happen. Fractures are happening not only in factories but on the highways and all over the countryside. A tremendous toll of life and disability have ensued from the improper handling of fractures. Only those who have had these cases can understand that it has been impossible in the past to give proper treatment early when treatment should be given. That is particularly true of compound fractures. I think that time

has gone by. In the next five years we are going to have carried out through the American College of Surgeons, the Red Cross and the Highway police a plan by which people injured can be brought into hospitals by proper police transportation. A great deal has been done in New York and Philadelphia through the police departments. When we have that sort of first aid treatment and transportation, we are not only going to have fracture cases handled at a time when they can be handled properly, but we are going to have fewer cases of fracture of the femur, for example, made compound and so very difficult to handle instead of easy.

Reform of this type is going to involve arranging for the carrying of simple splints in ambulances, going over the country and teaching large numbers of people the method of applying splints. In Boston we have not gotten around to satisfactory ambulance arrangements, but the hospitals have improved their service in this regard.

Next is the question of the changed point of view in relation to compound fractures. I think we have gotten to the point where we pretty well know how to handle compound fractures. We know that the *laissez-faire* methods are unreliable. We know that compound fractures should be radically handled, but not over-radically handled, that they should not be subjected to extreme debridement processes, but cleaned out thoroughly, repeatedly, and so put up and taken care of that we have natural drainage, with the bones covered in, but the wound not tightly sewed up.

With the general run of fractures I think our improved methods of skeletal traction and other traction will make it unwise to continue the handling of compound fractures with open internal fixation methods. I am aware that O'Neill Sherman has done a great deal with open wounds, with mechanical fixation and "Dakinization," but he is an unusual man and situated in unusual circumstances. With us, usually without a "Dakin" service, it means radical cleaning up and skeletal traction and immobilization. We would recommend that sort of thing as the favorable way to handle these cases, but for ourselves to handle, not to leave that to internes and students. If we follow this plan we are going to have much better results, in fact, the results are already showing up better.

Now the question of traction. Recently Darach of New York has done great service by emphasizing early and late the desirability of early adjustment of fractures. That is particularly true of fractures of the thigh and lower leg. If you let those cases go without adjustment for over twenty-four hours they are very difficult to treat, whereas, if they are subjected to *early* traction the problem is immediately simplified. Anyone who has ever tried to bring down a limb to normal length knows what happens. The first thing is spasm of the muscle and late traction is inconvenient not to say painful, and also incompetent. In the cases in which we are going to use traction, *very early* traction is the thing we should emphasize in the hospitals and on our particular services. It is not done enough but so far as done it is producing results. It is only lately that any number of us have begun to realize that. I have spoken of the great efficacy of the modern methods of traction. That is partly because we are learning to use splints properly and partly that we have learned what to do with traction. We have methods that are more effective. A great deal can be done with adhesive traction without using skeletal traction, a great deal more than is being done. In the hands of men who are rather expert it is relatively seldom that one sees poor results of skeletal traction, but it does require more than average skill and experience to get consistently good results. For most trained men I think skeletal traction is a very valuable resource, for all of us it has great value. Up to recently traction with tongs, or with the skeletal pin, carried trouble. The tongs led to sepsis, not usually, but not so unusually. The Steinmann pin is apt to lead to pressure necrosis from the increasing diameter of the pin from tip to middle, necessarily compacting bone, traumatizing tissues. Such pressure necrosis has often led to long continued sinus inconvenience, at least. We have had results with the newer Kirschner wire. This has almost solved the problem. Curiously enough it is an innocent thing. One would expect it to cut its way out, but it does not. Perhaps, better let us say, it does cut sometimes, but rarely and not seriously, and infection is negligibly rare. You can leave it without difficulty; you can put on traction and leave it in as long as you like, if you will remember that in most parts of the body there are neutral places

where you can put the wire through without doing any harm. In the lower limb we can put the Kirschner wire through the tubercle of the tibia below the knee, and make it possible to carry out motion. You can put Kirschner wire through the crest of the tibia, or through any of its subcutaneous surfaces, or through the os calcis. Skeletal traction is going to be much more used in lower leg traction than in the past. I think it is going to solve many of our problems, as we learn to use it skilfully, early.

With regard to open operation on fractures, we now know pretty well what cases have to be operated on by open operation, and what cases do not. I think no one today is going to operate on femur fractures in children unless there is some very definite reason. A few years ago we did a lot of them, and thought we were doing the right thing.

Another very definite advance is the institution of early physiotherapy. If we can with proper fixation by old or new methods, and with early physiotherapy bring about what Lucas Championnière pointed out, really early mobilization of joints, our results in function are going to be more prompt, more complete. We are only just learning that, because such handling is difficult, and because of the lack of trained physiotherapists, and because surgeons have not paid enough attention to this side of the fracture game.

Early mobilization does not come easily since we have the inherited tradition, and are still keeping all of our fractures up unnecessarily long. There are some which, owing to delayed union, do need fixation for a considerable time. Early movement of joints is very important. For instance, in fractures of the surgical neck of the humerus, instead of keeping them up for many weeks without motion, we are starting motion in a week or ten days, getting into no trouble; in fact, securing far better results. The general principle of early motion is coming into general recognition. Passive motion is almost abandoned, and I am almost ready to say that it should be entirely abandoned. The old methods of passive motion and of stretching, such as carrying water buckets to straighten elbows, on the whole did more harm than good. We have almost entirely abandoned "breaking up" stiff joints—breaking them up and in two days having them back where they were! With all of this we have come to use



physiotherapy with *active* motion more and more, which may be actively supported movements or free movements.

Such active motion may be that of free voluntary movement, or it may take the form of "active supported movement" in which the operator merely carries the weight of the limb while the patient contributes his own muscle power to gain motion. Active movements give far less pain than passive, and with less pain we get less (or no) response of defensive muscle-spasm, which defeated so much well meant physiotherapy for so long. In conjunction with active movement we have added something which is new to many, that is the Smart machine, a successor to the Bristol coil. This we have found of great advantage in the institution of early active motion. It is simply a high frequency faradic current so adjusted that we can get strong muscle contraction without pain.

The particular advantage of this is with the reluctant patient who can so be taught to synchronize his voluntary effort with the rhythm of the electrically-produced muscle effort. So one can get started earlier, more easily.

In the matter of physiotherapy I am ready to endorse co-ordinated muscle exercises under supervision. We have a physiotherapist who winds up the leg cases with a course in tap dancing, which sounds very frivolous, but is very useful.

In convalescence we are learning to use the convalescent splint. Large part of the bad results of fractures in the past were due to deformities acquired in the later treatment. That is not necessary. Today in the Boston City Hospital we no longer see femurs which refracture on the way up to the front gate. Those cases were once common. Now the patients go out in a properly fitted convalescent leg splint and it is pretty difficult for them to refracture the thigh. Also in connection with that we are learning a good deal about corrective splints. A great deal can be done with pressure pads and straps on fractures that are apparently solid but are still in what we call the "molasses candy" stage in which they can be molded. That applies not only to cases treated in the hospital, but to ambulatory cases as well. I think I am correct in saying that ten years ago in my hospital I was just beginning to get convalescent splints properly used in all

fractures of the leg and ankle. Now they are a matter of routine, and everyone who has a fracture uses them.

In regard to regional fractures, I do not mean to pick out the unusual cases, but the usual problems that confront us. In the first place, as to *lesions of the spine*, in spite of all the advances in neurological surgery I think we handled these fractures pretty nearly as well ten years ago as we do today. They are surgical cases, and just from the fact that they may involve the cord they are not necessarily neuro-surgical cases. Most spine fractures are not. The cases that fall into the general surgeon's hands are as a rule, however, "compression fractures," and they seem to be commoner and commoner. I cannot believe that the difference in frequency means only that they have been previously overlooked. A great many of them are automobile fractures. Compression fractures of the spine are nearly always between the tenth dorsal and second lumbar vertebrae. That is the point where the spine ceases to be protected by the bony conformation of the ribs, and the point where the dorso-lumbar curve reverses. The man is jack-knifed or doubled over in a fall. Neglect of these cases results in back kyphosis only too often, more or less disabling. For a long time we have known that moderate correction of these cases in hyperextension made a good deal of difference in the results. It is only lately that the question of correction has come up. It was first brought up by Davis of Erie some five or six years ago. He is in favor of immediate forceful correction. William A. Rogers has done some good work on this recently; he is willing to go more slowly, but he is still radical.\* The question comes up, how far such treatment is applicable to the hundreds and hundreds of cases all over the country. I can say this: It has been definitely shown that certain of these cases can be corrected and the crush in the spine opened up like an accordion, and the end result *may* be that of a most perfect spine. Whether that is worth doing in all cases I do not know. If it is attempted in all cases we shall run into trouble at times because of the associated sympathetic lesions, with belly distension, etc., and will find it has to be abandoned, not seldom. There is no question that *either* this or a deliber-

\*Note: Bohler's routine seems too radical in ambulatory after-treatment, with heavy exercises, for our needs.

ate attempt at gradually *increasing hyperextension* is very necessary to get good results in these cases.

Particularly for the routine cases, I am using the O'Connell frame without attempting forceful reduction. On the other hand, forceful reduction is a very pretty piece of work, and in selected cases should be resorted to. The results in either case if properly taken care of are very good. Bed for a month, brace support for six, complete the routine.

*Shoulder fractures:* Not many years ago all these cases were treated in abduction, usually with traction. Some of them should be. Many more shoulder fractures should be treated in bed for a shorter period than has been the case in the past. Today the particular thing we see is either a fracture of the greater tuberosity alone or a fracture of the surgical neck or a combination of the two. If you have a fracture of the greater tuberosity, there is no question but that this is best treated in abduction, not necessarily with traction, to secure such adjustment of the fragments that the greater tuberosity will go under the acromion and not block motion. In fractures of the surgical neck on the other hand, it has come to the consciousness of most of us that that particular thing has no point. Fracture of the surgical neck is associated with displacement of the shaft on the head usually inward and forward, and the problem is one of reduction. That reduction can be done with traction and leverage almost entirely in the great majority of cases. When that is done there is no occasion for abduction. Remembering that these are nearly always fractures in elderly people, long fixation is hazardous. We should start mobilization as early as the first week and carry through on that basis. Non-union is not to be dreaded: it occurs only in the text-books.

The Murray-Jones' traction splint has its place, there is no question about that. Possibly the Thomas splint with traction at the side has its place; I do not know. Possibly the traction-abduction splint has function, I am not quite sure. I know that they are tremendously over-used and usually, unless intelligently applied, inefficient, and even more inefficient after a few days on account of slipping.

I think our whole perspective of handling these shoulder fractures has changed.

Fractures of the upper arm are to be treated as bed cases far more often than in the past, not necessarily for very long. Most of them can be treated with traction, either direct straight line traction or with Kirschner wire inserted through the olecranon with the elbow flexed, the hand supported. Such cases are not operable with one exception, namely, transverse fracture of the humerus in adults, which fracture is very often hard to handle, with frequent non-union resulting. Unless you can get *accurate* results, otherwise, those cases are better operated on.

Fractures of the shaft in practice are treated nowadays in bed with traction, almost to the exclusion of open operation.

Elbow fractures in children are not to be treated by open operation; the operative results are not good with the exception of operation for relieving the circulation to avoid Volkmann's paralysis, opening the hematoma under the deep fascia so that you do not get an ischemia from that. Another exception is in the case of nerve lesions which are not uncommon with the fractures of the internal epicondyle even in children. The third exception in children is separation of the external condyle with rotation which may and not uncommonly does give non-union unless one cuts down, rotates the fragments, holds them in place. Moreover, in these cases the rotated fragment uncorrected almost invariably produces an unsightly spur of new bone.

Apart from these instances, I think there is every reason for letting elbow fractures in children alone. When you put them up in acute flexion there is insistently the question of testing the circulation. Generally an acute angle after proper reduction is the wise plan, but a right angle splint *may* show better holding position. We have learned also to leave them alone after we have put them up. We have learned to keep them away from the physiotherapist. We have learned that children will mobilize their own elbow fractures, if we give them time. It may take a year or more, to be sure, before we get full end results, but in the end they average very well.

About the adult elbow fracture I do not think we have learned much. We have learned that open operations do not do very well, but we knew that before. We have learned to handle many of them with traction, with wire through the



olecranon, with the bent forearm supported from the Balkan frame. We have learned to start these cases with early supported active motion, and get the best motion we can get. All of these elbow fractures in the adult are followed by a lot of new bone formation, and I am sorry to say that as I see them a great many of these cases get results poor enough so that the operation of arthroplasty has to be resorted to before we get results.

*Fracture of the radial head* was operated on too much in the past. A great many of these cases will get by without any operation, and get excellent results. In some of them the head is so shattered that the fragments have to come out, and the head is sacrificed immediately. Results of such operations are very good indeed, particularly if the removal of the head is done early.

In case of doubt, however, two weeks of observation (arm splints) will make it clear on test whether rotation is going to come clear. It is not then too late to operate. Later operations do not do so well. But a surprising number will come out all right, *without* operation.

There is one *lesion at the elbow* that has been more lately recognized as an entity, resulting always from a fall where a blow is received just below the elbow with the elbow flexed. The result is a transverse fracture of the ulna very close to the olecranon, with upward luxation of the radial head. These cases are almost hopeless unless operated upon almost immediately, the operation consisting of exposing the ulna, and pinning the fragments. The displaced radius follows the ulna into place.

*Fractures of the Forearm:* These are always formidable, except in children. They are being handled today with manipulation under traction with very much better success. Suspension traction carefully applied will suffice in the great majority of cases.

Correction is by manipulation, and suspension need be carried out only for a couple of weeks at most.

At present there is a vogue for various forms of wires and pins for traction, with encasing plaster to maintain length. Mechanically, this is, of course, the most efficient way, but one does not care to put wires or pins in at the wrist. It is a region anatomically too full of chances of trouble if things go wrong, as they do once in a

while in the best hands. Surely anything as radical as Böhler's transfixion of both radius and ulna at the wrist is too radical for most of us.

More conservative methods usually give results.

It must be confessed, however, that not a few cases come to open operation, consisting of reduction of each bone and fixation if that is necessary, by plating of one bone only. Probably as we learn to manage traction methods better we will do less and less operating. They are not cases one cares to do an operation on, but open operation is hardly more formidable than some external fixation methods proposed.

*Wrist Fracture:* We have known for a long time that traction, flexion and pronation was one good way of reducing Colles' fracture. There are other ways of reducing, effective if rightly done. We have known, some of us, for a long time that in order to reduce the possibility of recurrence of the deformity the best stratagem is to put the wrist up in flexion and leave it there for a week or ten days, and then flatten it out. That method has consistently shown better results. I am sorry to say that the general results of Colles' fracture, particularly from the bigger hospitals where the fractures are usually handled by internes, are still discreditable. There is no reason for poor results of Colles' fracture if we remember that there is a very definite chance of reproduction of the deformity after it has once been reduced. If we remember that and remember that this can be avoided by flexion position then we will do better.

*Fracture of the Metacarpals:* The treatment of these fractures has been entirely transformed by the application of traction with banjo or other splints, using elastic traction.

There is no longer any excuse for treatment with the hand flexed either over the once much used roller bandage, or the more modern aluminum substitute.

*Fracture of the pelvis* until very lately was treated by *laissez-faire* methods. The radical reduction of fractures of the pelvis is pretty new. The first man I ever knew to do that was John B. Murphy, and he had worked out an ingenious scheme for the reduction of "central luxation of the femur," where the head of the femur is driven through the acetabulum. That is one class that ought always be reduced. The difficulty is not in reducing them, but in holding them. The reduc-

tion can be direct by direct longitudinal and lateral traction, or by putting a wedge between the thighs and bringing the knees in together. Or, it can be done by the method I described of bringing the thigh up into flexion and adduction, and using the operator's arm against the one fixed point, the anterior superior spine, as a fulcrum. Whatever way it is done those cases are reducible. Reduction has never led to any harm. The problem is one of continued traction, enough to prevent reproduction of the fracture deformity. The results of proper traction treatment are good—surprisingly so, considering the extent of damage.

The ordinary types of fracture of the pelvis, fracture of the rami, unless we have abdominal complications, require very little treatment. These abdominal and bladder complications have become notably less in recent years because, while fractures of the pelvis have been much more common they have been automobile fractures, and not the type where a workman gets *crushed* under a load of coal. Usually the patient is tipped out of an automobile, and there is nothing but a shattered bone. Therefore, we see very few of these complications. There is one pelvis fracture that is very formidable and not uncommonly accompanied by complications, the "double fracture of Malgaigne," where the rami are broken in front, and behind there is separation at the sacro-iliac joint, with a fracture through the corner of the ilium or into the sacrum as the case may be. These are particularly formidable because they are accompanied by a shifting up of one side of the pelvis and distortion of the whole body. These cases if gotten fresh are reducible. I have reduced a couple of them within the year. They require a great deal of force. I cannot say the reduction is without risk, though I know of no case of trouble. This is one particular place where I would not be without Roger Anderson's splint, that pushes on one leg and pulls on the other. It is to be used with skeletal traction, for both reduction and maintenance of position. These cases may carry some risk. I do not know that they do, but we get perfect results if they are reduced and very serious disability if they are not.

*Hip Fracture:* I do not dare to go into any long talk about hip fractures. There is no longer any decided difference in ideas about extracapsular

hip fractures; they always unite. The ordinary treatment is longitudinal traction with or without lateral traction. The ideal treatment is traction in plaster—all right, if you make sure with frequent x-rays that they do not slide by. The fracture heals in five or six weeks and there is no disability except that the heaping up of callus limits the motion of the hip.

There is no time to go into any extensive discussion on intracapsular fractures. The whole thing has got to be worked over. The old methods have not been very successful. I think that no one can say where we are going to come out in this matter in the next five or ten years. We have found, due to the work of George and Leonard, a method of taking lateral views to check on our reduction and to show how we are holding it. There is no use treating these cases by any method unless you reduce the displacement. They have to be reduced by adduction and internal rotation after preliminary traction, then brought to extension and abduction. The accuracy of that reduction can be tested with the "saddle" view, the film being set between the legs, the light up near the shoulder in the axilla. The question is whether good reduction plus any method of fixation is going to be enough. The question is whether we are going to need in such cases operative reduction of the simplest kind in order to maintain position. The question is whether after all that is done we are going to get a rather unsuccessful result. The work of Phemister and Santos has taught us a good deal about necrosis of the head. We realize that the head in fractures of the neck of the femur often dies, and that absorption of the neck may occur with the head alive, whatever we may have done. That being so, we are going to be very careful in saying that *any method* is going to give perfectly good results. Five years from now someone is going to tell us something about intracapsular fractures.

One question comes up here apart from what I have said. There is a question whether early operation that opens the capsule, drains the synovial capsule and gets rid of the synovial fluid will not hasten repair, because synovial fluid interferes with repair between the ends of the bone.

A word about *fractures of the shaft of the femur*. In children we no longer operate unless there is a very good reason to believe there is



some tissue between the ends of the fragment, which there very rarely is. The one exception where you may have to operate is the fracture very close up under the lesser trochanter. If the usual fractures are brought down to length, and kept in decent position they will take care of themselves. A couple of years of growth will take care, up to  $\frac{3}{4}$ -inch of shortening, of the length. This compensation seems to occur regularly.

In adults we are coming to believe that we should operate oftener, particularly in young muscular men. Operation gives a certainty of union that you can get in no other way. In older people in whom perfect function is not so important, and in whom the liabilities of operation are a little greater, it is commonly wise to make a reduction and hold the fragments in position by whatever means seems best. In other than transverse fractures and high shaft fractures there does not seem to be any excuse for operation.

*Fractures of the outer tuberosity of the tibia* are typically produced by the leg being run into by the fender of a car, but may happen from any force that drives the knee into a valgus position. Those cases uncared for do extremely badly, cared for in any reasonable way they do amazingly well. They do much better in the end than the x-ray pictures would lead you to suppose. They can be managed by hammer from the outside or by open operation. Personally, I rather object to open operation, though I have done many. I do not think the results are any better than with the closed method, owing to the comminution of fragments, and the difficulty of doing any fixation in the open wound. The key is a reduction as good as you can make it, and then not allowing any reproduction of the valgus deformity. The position should be maintained for six weeks, then a convalescent splint from three to four months. This is a class of cases seemingly more frequent of late years, only recognized as a class for a comparatively short time.

*Fractures of both bones of the leg:* We are coming to a period where everybody recognizes and most people practice either open operation or traction, usually skeletal. The old method of putting them up in plaster after ordinary manipulation is not satisfactory. We have got to have better results. There are too many cripples. In

this country we have never come to the more or less attractive methods of having the patient walk the next day. I do not care very much whether he walks the next day or not, but I do care whether he walks six months later.

*Ankle Fractures:* I worked out a classification of ankle fractures a few years ago, and it is simple enough for anyone who wants to use it. I think it clarifies the situation for many men who are not fracture specialists. I shall speak of only one class, that is the class of cases in which the patient comes down on his foot, and for some reason the os calcis does not give way, the tibia smashes up into all sorts of "breakfast food" fragments. There may be no fracture of the fibula; if there is, it is simple, and of no importance. Those cases, if they can be brought down to length and the fragments molded in position, usually give pretty decent results. If that is not done, they always come to later operation. Those cases must be handled by traction, Sinclair traction, or pin or wire traction, combined with manipulation—traction for a month, usually.

The only other thing I have to say about ankle fractures is in relation to convalescent splints. We have learned to use convalescent splints. We have learned in ankle fractures, particularly of the Pott's type, that the valgus deformity is very important. It may not be a matter of bone displacement itself, but due to the fact that when the patient begins to walk he has no muscles to protect the arch and he develops a valgus—flat-foot. Therefore, those cases should go up in convalescent splints until after the muscles can be brought back to a reasonable efficiency and tone so that they can take care of themselves.

*Os Calcis Fractures:* Perhaps I have talked enough in the past about os calcis fractures. Since we have learned that we can do a proper reduction of os calcis fractures and that we can maintain the reduction and prevent heaping up of bone under the external malleolus (which has been the major cause of disability) with pads under the plaster in the first place, and in the second place, by specially constructed screw pressure pads attached to the shoes, we have been getting better results.

Open operation and arthrodesis for calcis fractures, very favorably received for a time, have failed to gain vogue. The failure to get a good position of the foot has been responsible, and if

you do an arthrodesis and it is not satisfactory, you have shot your bolt, and you cannot do anything more. So there is a disadvantage to that form of treatment, attractive as it seemed when first brought out.

We have learned to recognize a lesion of the ankle which is comparatively common, and not usually treated as it should be, that is the case of midtarsal dislocation, usually with a scaphoid fracture. In certain lesions of the foot, the head of the astragalus drives down into the next row, crushing the outer side of the scaphoid so that the foot is brought over into a clubfoot position. Unless this is recognized and properly handled it gives a very crippling result. These cases can be handled by arbitrarily bringing the foot over into over-correction, not minding the fracture, save for pushing fragments into place, and letting it consolidate there. You will get a strong ankylosis between the scaphoid and cuneiform, but that does not matter. I speak of the lesion because I think it is almost universally unrecognized and because it is important.

In the conclusion of this very sketchy talk, I would say that it seems to me that in relation to progress in fracture treatment our problems are not primarily a lack of knowledge—we are getting along pretty well in the matter of knowledge. There are many men who are interested, and these men are coming to a common ground on most of the problems. But the problem is, how are fractures going to be handled? Who is going to handle them? That is a question not only of dispersion of knowledge, but a question of personnel and organization. The body to which I have had the honor of belonging for a number of years, the Fracture Committee of the American College of Surgeons, has really tried to do something along that line. I think something has been accomplished. Probably the best way is to have in each hospital, or in each community, a small group of men who are recognized as authorities on fractures. It does not mean that they are to treat all fractures because that would be ridiculous, but to see that standards are kept up. It is in that way that we are going to work in the future. It is a question of personnel, as well as dispersion of knowledge already existing.

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## FRACTURES OF THE ELBOW

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For the purpose of description, fractures of the elbow may be divided into several types each of which has its typical deformity and requires a certain routine of treatment.

1. Simple fissure fractures.
2. Fractures of the head of the radius.
3. Fractures of the shaft of the ulna with a dislocation of the head of the radius.
4. Fractures of the olecranon.
5. Fractures of the condyles of the humerus.
  - a. Fractures of the internal or external condyle, including epiphyseal injuries.
  - b. Supracondylar or di-condylar involving both condyles. This includes a T or Y shaped fracture.

The sole reason for discussing simple fissure fractures, the treatment of which is self evident, is from the standpoint of diagnosis. A good anteroposterior or lateral roentgenogram is essential and the tube should be centered on the elbow rather than taken at the edge of a forearm picture. In children the interpretation is made infinitely easier by comparison with the opposite elbow, as the numerous centers of ossification which unite at different times produce pictures that may cause confusion. Inasmuch as there is usually some effusion into the joint which will prevent complete extension it is helpful to inject 2% novocaine into the joint or into the fractured area for the purpose of anesthesia thereby permitting a good anteroposterior view.

To the accepted routine of treatment for fractures of the head of the radius I have little to add. Fissure fractures do well if immobilized for a reasonable period of time with the elbow at a right angle and the forearm supinated. Fractures with much comminution require resection of the head. I can see no harm in questionable cases in waiting several weeks before making a decision to resect, but in general when there is much comminution time will be saved by operating shortly after the injury. A guarded prognosis should be made in fractures with less comminution. Some fractures of this type will be seen where only a portion of the head is displaced and in such cases only the displaced portion



should be resected, particularly when it is the lateral half.

Fractures of the ulna with displacement of the radial head present few difficulties if the radial dislocation is recognized and reduced promptly. The restoration of the normal length of the forearm by reduction of the dislocation will restore the alignment of the ulna so that with slight manipulation any angulation can be sufficiently well corrected. The chief point here is recognition of the condition, a point which has been occasionally missed. When one sees a fracture of the ulna with an angular deformity the position of the radial head must be definitely determined before proceeding further.

The last group in our classification, namely fractures of the condyles of the humerus, includes probably the greatest number of elbow fractures and it is with this class chiefly that this paper will deal. The position of acute flex-

In fractures of the supracondylar or dicondylar type the typical deformity is a backward displacement together with some lateral displacement and rotation of the lower fragment. The backward displacement is the key to the situation. This may be so severe that the humerus protrudes anteriorly through the biceps, and there is kinking of the artery and veins over the



2. A. P. and lateral of the same elbow, satisfactory reduction completed by the method described in the paper. Note the position of the condyle with reference to the long axis of the humerus. A position still farther forward is often obtained and is advantageous.



1. Lateral view of the elbow, reduction incomplete. Humeral condyle still displaced backward.

sharp ends of the proximal fragment producing severe pressure which, added to the outpouring of blood into the soft tissues in and about the elbow joint, produces a severe circulatory disturbance. These fractures are characterized by a great amount of swelling and in a relatively short time the entire forearm and hand will be blue, painful and cold. Failure to treat such cases without due regard to the circulatory disturbance will frequently result in fibrosis of the muscle and some grade of Volkman ischemic contracture. I believe that this circulatory disturbance in the arm is an important factor in producing contracture, as pressure from a too tight splint.

For the relief of this circulatory disturbance an incision and expression of the blood clot has been suggested. I have tried this at the time of reduction and feel that it is a valuable procedure particularly in the very young, that is children of about two years. It is surprising to see the amount of blood clot that can be expressed and the degree to which the swelling can be reduced and when this can be combined with a good reduction nothing further is needed. This is the

ion is often suggested but to my mind has certain objections which I believe contribute to the relatively poor result so often secured. The two primary difficulties to be overcome are,

1. Disturbance of circulation.
2. Difficulty in obtaining a complete reduction.

reason for restricting the procedure to the very young, because such cases can be satisfactorily reduced by manual means. In older children and adults the method which I shall describe later has proven so satisfactory that I have not found it necessary to resort to incision.

In older children and adults reduction by manual manipulation is difficult and often impossible. The arm is further traumatized by tight gripping and by manipulation of the fragments the arm cannot be flexed much beyond a right angle without adding further to the pressure on the great vessels.

As stated previously the important factor of the deformity is the backward displacement. Notice on the lateral view of a normal humerus



3. Details of the Zeno Method of vertical suspension. Note—this particular arm was covered by bandage for abrasions. The cast is placed just around the pin and does not extend onto the upper arm.

that the condyles of the humerus lie anterior to a line drawn through the middle of the shaft of the humerus. This is the relationship which we should strive to attain. Even after the fractured ends seem to be together there is a great tendency due to the pull of the triceps for a rotation of the distal fragment, pulling the condyles backward and up. If allowed to heal in such position the head of the radius will impinge on the humerus too quickly and full flexion cannot be obtained while the callus fills in the olecranon fossa and blocks extension. Too early passive motion tends to increase this amount of callus.

In attempts to secure more efficient reduction,

traction is a natural suggestion. Skeletal traction by means of a Kirschner wire through the upper end of the ulna is safe, is more efficient, and probably does less damage than tight gripping of the forearm with the hand. In some cases this increase of efficiency alone will improve the result. The efficiency of such traction, however, is aided by the use of the Bohler apparatus as illustrated. With this apparatus there is the added advantage of being able to apply the cast, including the traction wire, while the pull is maintained. With the use of a portable roentgen machine it is very easy to secure a lateral check-up film to test the reduction.

In more severe cases, particularly when there have been previous attempts at reduction and the swelling is extreme, I have deemed it advisable to avoid manipulation as far as possible and have used the method suggested by Zeno of Buenos Aires. It may be applied either with or without the preliminary use of the Bohler traction and has proven so satisfactory in the cases on which I have tried it that I beg leave to present it in more detail here.

Local anesthesia, which is obtained by the injection of 2% novocaine into the line of fracture is invariably used. Preceded by a sedative hypodermic I have used it in children as young as four years and in older patients without difficulty. The technique of this type of local anesthesia is so well known that further description is unnecessary. A Kirschner wire is drilled through the upper end of the ulna and traction applied by the Bohler apparatus with downward pressure on the shaft and upward pressure on the olecranon; then sufficient plaster is placed around the wire and on the forearm to prevent slipping of the pin. This step I believe is important as there will be no difficulty from infection because movement of the wire is thus prevented. Then the patient is placed in bed and the arm slung up to an overhead frame by means of a pulley and three to five pounds of weight for counterbalance. In this position the patients are very comfortable. Rarely has a sedative been necessary. Within a few hours the swelling starts to disappear, the fingers move with increasing freeness and normal color is quickly restored. Four to six days usually suffices for the complete disappearance of all swelling and even when the screw traction has not been em-



ployed a roentgenogram will usually show a normal anteroposterior outline and a complete or nearly complete restoration of the lateral outline. When the swelling has disappeared a non-padded cast is then applied from the base of the fingers to the upper third of the humerus including the wire. Forward pressure is exerted on the olecranon and backward pressure on the shaft with the other hand while the plaster hardens. The check-up film will then show the normal forward position of the condyles.

Subsequent treatment is directed toward the prevention of edema and mobilization of the hand and shoulder. Often an abduction splint is applied for the first week or two with light traction on the cast. If the pin is incorporated this pull is transmitted through the wire. This abduction splint is removed when the patient will voluntarily raise the arm above the head and lower it back into position without fear or pain. When the splint is removed the patient is instructed not to carry the arm in a sling, to use the hand in as many ways as possible and to place it back of the head and around behind the back many times a day. The muscle contracture thus induced will suffice to maintain good circulation and prevent edema. Children usually behave well if the parents can be convinced that the arm should not be babied and protected. Recurrence of the edema when the technique of cast application is proper is due to non-use of the hand and will occur in people who persist in carrying the arm in a sling and regard it as a broken arm. In such cases the threat of re-applying the abduction frame is often sufficient to stimulate the person to greater movement.

Under these conditions and with a satisfactory reduction I do not believe in early passive motion and regard it as harmful. I believe in maintaining complete fixation until a well developed callus is showing, that is until bony union is nearly complete. This will ordinarily take from four to six weeks. Removal of the cast and commencing of movement before this time is painful, produces edema, stimulates excessive callus and fibrosis of the capsule and may even produce backward displacement of the condyles which we have tried so hard to avoid. Of this fact I am quite sure, that no manipulation is advisable until there is good sound bony union. A callus which becomes tender under

strain is a yielding callus and I believe in maintaining fixation until a callus is not tender to pressure.

The time of removal of the pin is of little importance. In children one frequently has to change the cast at the end of three to four weeks because the arm is used so much that it becomes dirty and cracked. If so the pin can be removed before the second cast is applied. Otherwise it may be left in situ without fear, as a wire imbedded in the plaster which does not move is perfectly safe.

After removal of the cast such use of the arm as the patient will ordinarily give it is usually all that is sufficient. I have resorted to massage by physiotherapist in only one case since using this method, which was in a woman of advanced age in whom I was unable to remove the fear of using the arm. In one other case where the separations of the condyles was extreme I used a cast hinged at the elbow and with a turnbuckle to increase the amount of flexion. This case, however, was one in which I had not employed the vertical suspension but had depended solely on the Bohler type of reduction.

Fractures involving only one condyle are similarly treated but as a rule are simpler. In these the Bohler traction alone will often produce a good reduction. When the internal condyle is affected there is an angular deformity of the arm which as Bohler has pointed out disappears when the forearm is placed in full pronation, and that point must be borne in mind in the reduction, but even here I have found it advantageous to suspend the arm for a few days before applying the final cast.

There is, however, one type of injury to the external condyle which demands special attention, namely dislocation of the epiphysis. This is not a common type and occurs in children between seven and nine years of age just shortly before the union of the shaft. Four such cases have come under observation in the past two years. In these cases as in all epiphyseal injuries it is very important to get an anatomical reduction for the sake of future growth and in these cases any method of closed reduction which has come to my knowledge is entirely unavailing. The reason is evident when the pathology is analyzed. The epiphysis is completely severed and pushed out through the extensor group of muscles just as if through a buttonhole and comes

to lie beneath the deep fascia or even subcutaneously. The buttonhole in the muscle closes behind it and efficiently bars any attempt at reduction.

With this conception of the pathology it is an easy matter to plan a lateral incision which will reopen the buttonhole and replace the dislocated condyle. If this is done promptly, within ten days, it will be found that the fragment goes into place like the last piece of a jigsaw puzzle. It fits so accurately that it scarcely seems to require fixation, although I have been in the habit of placing one or two catgut sutures through the periosteum. The arm is dressed at right angle and held in place with a nonpadded cast. In these cases so operated on my observation has been that the epiphysis has continued to develop normally and perfect function has resulted. Where operative procedures were not used there has been continuation of growth of the epiphysis and a production of a mass of bone in the extensor heads which greatly limits motion. In such cases the function of the part is improved simply by removal of the dislocated fragment. This, of course, is advisable only in cases coming under observation several months after the original injury.

In conclusion, let me emphasize again that attention to the circulation is of prime importance in all fractures of the elbow. Excessive manual manipulation and forcible flexion are ineffective in producing reductions in difficult cases and are apt to increase rather than decrease the circulatory difficulties. In my own experience the method of skeletal traction combined with a period of vertical suspension has been most satisfactory in relief of the circulatory condition as well as in obtaining a satisfactory reduction. I have not resorted to open operation on a supracondylar type of fracture since adopting this method. Operative measures are imperative in dislocations of the epiphysis, in comminuted fracture of the head of the radius and in most olecranon fractures. The common complications, ischemic paralysis, fibrosis and the formation of excessive bone about the joint are as a rule the result of an excessive trauma or circulatory disturbance and their occurrence, I feel sure, will be reduced by attention to the above details. The chief factor to be noticed in checking reductions is the position of the condyles with reference to

the long axis of the humerus. Occasionally a detached piece of cartilage or a calcified blood clot in the joint will remain to produce trouble, or occasionally a nerve has been injured by the original trauma which is an unavoidable occurrence. Rarely a true myositis ossificans will develop. The infrequency of the more common complications leads me to recommend to you this plan of treatment for the severe types of supracondylar fractures.

#### DISCUSSION

Dr. Paul B. Magnuson, Chicago: There is one condition Dr. Easton has mentioned which I think ought to be emphasized in injuries about the elbow; that is, a fracture of the ulna with forward dislocation of the head of the radius. That dislocation sometimes is extremely difficult to reduce, and unless the dislocation of the head of the radius is reduced, it is almost impossible to hold the ulna in reduction. The muscles of the forearm are very active, and they work hard for twenty-four hours a day. If the radius is not brought into full alignment to act as a support for the ulna it is practically impossible to prevent angulation of the ulna at the point of fracture. The important thing is to reduce the dislocation of the radius first. This is sometimes a difficult matter, because when the head of the radius is forced out it tears through the orbicular ligament. If the tear occurs immediately over the anterior surface so that the head of the radius comes through the middle of the orbicular ligament, the head of the radius can sometimes be forced back and reduced, and can be held in reduction by flexion. Putting the arm up into an acute angle of flexion, or else putting traction on it, will hold the head of the radius posteriorly toward its level with the olecranon. On the other hand, sometimes the orbicular ligament is not torn at the anterior surface, but is torn laterally or medially—that is, on the side of the head of the radius—and then the head of the radius lies anterior to the flap of orbicular ligament, and when the head is forced backward the flap of orbicular ligament is pushed into the bed ahead of it and prevents reduction. Under this circumstance no amount of traction will force it back, because the bed is already filled up by the orbicular ligament. In such case it is necessary to open the radio-humeral joint, retract the orbicular ligament, put the head of the radius back and then suture the orbicular ligament. After that the ulna can be reduced and held by traction or splint, as the case requires.

There is another point in a fracture of the ulna with fracture of the head of the radius. In the adult, we are advised to remove the head of the radius if serious damage has been done. Frequently that must be done, but don't do it first and then treat the fracture of the ulna afterward by any closed method. I know of no closed method, except continued traction on the arm with very heavy weights, that will maintain the length of the ulna against the pull of the forearm muscles without the head of the radius establishing contact at the



lower end of the humerus. I have tried every kind of pull on that type of fracture, and never yet have I been able to maintain the length of the ulna without the additional support of the radius. All of you who have dealt with fractures in both bones of the forearm recognize that the activity of the forearm muscles must be combated twenty-four hours a day until there is solid bony union.

Dr. S. H. Easton, Peoria, Ill. (closing): I am very grateful to Dr. Magnuson for bringing out the point that he did. Being limited to twenty minutes, I merely mentioned these other fractures in passing, so that you would know the type of fracture that I wanted to talk about particularly. His point is very well taken; it certainly is true that, if you can get the head of the radius back, the ulna will almost take care of itself. And especially is it true that if you see much angulation in the upper end of the ulna, look well to the head of the radius lest you pass a fracture.

The reason for presenting this paper was this: so many times in seeing fractures of the elbow here and there I am asked, "What do you do with them? Do you put them up in acute flexion?" Acute flexion is bound to increase the circulatory disturbance.

I simply want to point out to you certain criteria, for gaining an accurate reduction in these fractures. Do not be satisfied until the condyles are forward. These fractures are hospital cases. It is worth while to put them in the hospital where you can swing them up for a little bit. When you see the difference in reductions you will find that the position of acute flexion is not what it is always cracked up to be. You have to use some more efficient method of getting a reduction and maintaining it than simply putting the arm up like this (indicating), which has very grave danger and very few advantages.

I personally like the mechanical nicety of control of the Böhler traction apparatus and of the overhead suspension as suggested by Zeno, which I have illustrated. In the worst cases when, due to delay, circulation is very bad, immediate use of the vertical suspension gives the maximum relief to circulation and at the same time is the greatest aid in obtaining an adequate reduction. This method is applicable both for adults and children.

## OBSTETRICS IS A SURGICAL SPECIALTY FOUR ILLUSTRATIVE CASE REPORTS

JOHN JOSEPH GILL, M. D., F. A. C. S.

CHICAGO

1. Spontaneous rupture of the uterus at five months pregnancy in a primipara. Hysterectomy, with excellent results.

2. Chorio-epithelioma necessitating hysterectomy at five months of pregnancy. No recurrence after nine years.

3. Placenta previa in a bicornate uterus, infant occupying both horns. Cesarean section with mother and infant in good condition.

4. Multiple large degenerated fibroids obstructing labor at term. Hysterectomy with mother and child living and well.

The object of this paper shall be to demonstrate by clinical reports some outstanding examples of abnormal obstetrical conditions which require major surgical intervention.

The majority of deliveries are properly conducted by the general practitioner. However, the advent of unusual symptoms demands immediate consultation with an obstetrician; a successful termination of the pregnancy depends upon obstetrical judgment as much as it does upon surgical skill.

In his presidential address to the American Association of Obstetricians, Gynecologists and Abdominal Surgeons in 1932, Dr. Walter T. Dannreuther said:

1. "The obstetrician who does not do the surgery of the lower abdomen is hardly competent to do the major abdominal work of obstetrics.

2. "The gynecologist who is not in intimate contact with all phases of obstetrics has lost much of his perspective in operating on women of the child-bearing period."

The observance of and adherence to the requirements therefore constitute a definite indication for special training in a restricted field beyond the limits of general surgery.

Pregnancy is a potential surgical emergency; the obstetrician must have his mind always decided on a definite line of action to follow in case of any sudden complication which may arise.

The following incidents will serve to indicate the seriousness of certain conditions and to emphasize the necessity for radical measures.

*Case. 1.* Mrs. J. began her menses at the age of twelve and has since been quite irregular, varying from three weeks' to four months' intervals with durations of from one or two days up to three or four months. They were painless and usually profuse in amount.

At thirteen years of age, Mrs. J. was curetted and at sixteen she was again curetted and the abdomen opened and one ovary and the appendix removed. She married at twenty years of age. At twenty-five years, she was again curetted. None of these procedures or medical treatment which was administered gave more than temporary relief from menstrual disturbance.

When twenty-nine years old, Mrs. J. had her last

menstrual period on July 16. On August 26 (while away on a vacation), she was seized with a sudden severe pain in the vagina. Heat applied to the abdomen gave relief in one hour. Two days later a second attack of pain, this time in the hypogastric region, was relieved by cathartics. On the night of September 6, severe abdominal pains were relieved by spirit of peppermint and she slept. Pains returned the next morning and extended to the right chest. The pain was aggravated by motion and relieved by heat applied over the abdomen.

Upon her return to Chicago, I first saw Mrs. J. on September 20. The uterus was distended almost to the umbilicus. Bimanual examination was difficult to make and inadvisable. Six days later, complaining of pain and fullness in the supra-pubic region and distress upon defecation, urination or exertion, she entered the hospital.

Laboratory reports were negative except for a slight anemia; the red cell count was 3,750,000 with 80% hemoglobin.

A laparotomy on September 26 disclosed a uterus about five months' pregnant, with a rent through a necrotic streak down the posterior wall, through which protruded the transparent amnion displaying the fetus. A supra-cervical hysterectomy was performed, which was followed by an uneventful recovery.

*Case 2.* Mrs. M. was born on March 25, 1903, and was married at the age of eighteen. Her first baby, an eight-pound girl, was born June 1, 1923; her second child, a six-and-one-eighth-pound girl, on January 17, 1925. Both girls are healthy.

September 15, 1924, was Mrs. M.'s last menstruation. Her health was good; she weighed 135 pounds. On December 15, she had a bloody vaginal discharge, with frequent recurrences during the next sixty days. On two occasions, there was a profuse gush of blood. During these two months, she also complained of extreme weakness, excruciating pelvic pains, dyspnea, fainting spells, and blurred vision.



Fig. 2. Posterior view of uterus with multiple large and small fibroids removed at cesarean section. Case 4.

On February 15, Mrs. M. entered the hospital. Her weight was 98 pounds; a loss of 37 pounds had occurred in two months. Red cells numbered 3,600,000, the hemoglobin was 75 per cent. and the urine was negative. On the following morning, I opened the abdomen and found the five months' pregnant uterus studded over, beneath the serous coat, with purple colored papules, varying in size from 2 to 5 mm. The uterus was removed with its contents intact and delivered to the pathologist, who reported:

"The blood vessels of the symmetrically enlarged uterus are dilated and congested; beneath the serosa, in the upper half of the uterus are small yellowish, dark red spots, sharply demarked, rather soft and on section appear red and contain blood.

"Microscopical sections through the fundus show a rough inner surface, the muscle is extensively infiltrated by cords and nests of Langhans' cell masses extending directly out into the wall with destruction of infiltrated muscle fibres.

"A diagnosis of chorioepithelioma is established by the type of infiltration and destruction of muscle cords and nests of atypical epithelial cells derived from Langhans' cells of the villi."

There has since been no evidence of recurrence of her malignancy and today, after nine years, her general health is good and she weighs 165 pounds.

*Case 3.* Mrs. L. was born October 4, 1900. Her menses began at the age of thirteen and were always regular, painless, moderate in amount and of five days' duration. She was married in 1920. Her period of February 1, 1926, was abnormally prolonged, scanty, dark in color and clotted; backache was frequent.

On April 5, 1926, examination revealed a slightly enlarged uterus, with an attached soft mass extending to the left which I considered to be a tubal pregnancy. The following day, a laparotomy revealed the mass as a left horn pregnancy in a bicornate uterus. The



Fig. 1. Anterior surface of fibroid uterus after delivery of living child, placenta still in situ, cord protruding. Case 4.



abdomen was closed, but nine days later she aborted a fetus of two months' size.

The patient's health remained normal and her periods regular until October 26, 1928, when the second pregnancy started. Life was felt on March 12, 1929. There was slight bleeding during the first trimester and again on June 21. At the latter time an x-ray showed the fetus occupying both horns, as if it rested in a hammock, with the head and arms in the left and breech in the right.

The next day I delivered, by Cesarean section, a baby girl, which weighed four and three-quarter pounds; the placenta weighed one and one-half pounds and occupied the lower uterine segment.

Seven days after delivery, a severe hemorrhage occurred from the placental site, with symptoms of pallor, blurred vision, thirst, air hunger, tingling of the skin and with a red blood count of 1,700,000 and hemoglobin too low to register. A pint of the husband's blood was used for transfusion. Recovery was prompt and at the end of three weeks in the hospital, mother and child went home in good condition.

Subsequent history: One year later, pregnancy progressed to term, with the placenta again filling the lower uterine segment and the fetus occupying both

sure was 180 and at times above 200. She complained of weakness, epigastric pains, and blurred vision: she could not distinguish objects ten inches distant. With rest in bed and digitalis, the dropsy disappeared and her blood pressure gradually fell to 135/75.

On July 1, 1929, a midline incision was made. The panniculus was very edematous and about two quarts of free fluid was removed from the abdomen. I delivered a four-pound female baby, and leaving the placenta in the uterus, I did a supra-cervical hysterectomy. Invested in this uterus were twenty fibroids, varying in size from a small marble to a football; the largest one was honeycombed throughout by cystic degeneration.

Mother and child have since remained in good health, which goes to prove that prolonged sterility and multiple large fibroids are not necessarily a bar to maternity.

These four case reports favor the proposition that obstetrics comprise a distinct branch of surgery which, with manual assistance, forceps application, cervical repair, and the toilet of the perineum, is of sufficient importance to be considered as a specialty which certainly is surgical in application.

It is thought desirable and advisable, if feasible, that the Illinois State Medical Society should incorporate in its program, a department of obstetrics since obstetricians are not interested in general surgery nor in industrial surgery which includes so much discussion outside of our field of limited specialty.

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#### DISCUSSION

Dr. Frank F. Maple, Chicago, Ill.: A few years ago I heard Dr. Gill read a paper covering his findings pathologically in 500 obstetrical cases delivered in the home. The pathological findings in these 500 cases were as they were summed up on that evening considerable. Five hundred cases are a considerable number of cases and delivered in the home they represent a considerable amount of work. Dr. Gill's summarization that night made us believe that he was a good obstetrician and for the many years that I have known Dr. Gill I believe and we still think he is a good obstetrician.

Many of the universities will argue about whether or not they should include as a heading for one of their departments Obstetrics and Gynecology or else separate the departments and make them one for Obstetrics and one for Gynecology. But, if the gynecologist is going to understand the anatomy of the child-bearing woman, he must also be an obstetrician. So, in the program of the American Medical Association we head it Gynecology, Obstetrics and Abdominal Surgery, believing that the gynecologist must know abdominal surgery.

I heard Dr. Murphy sitting right here testify only a few years ago that no surgeon should operate on

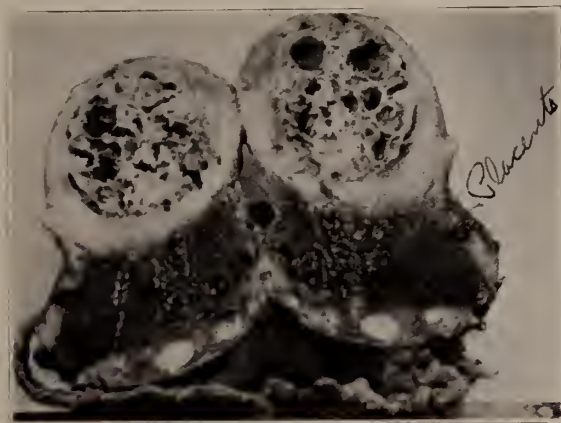


Fig. 3. Medial section of uterus from case 4, showing many interstitial fibroids, cystic degeneration of a large one. Placenta and cord intact.

horns, but with reversed position—the breech in the left, and head and arms in the right horn. At this time, I delivered a male baby and removed the uterus. The baby has since died; the mother is living and well.

*Case 4.* Mrs. T., aged 38 years, had been married fifteen years. Her history gives no record of surgical operation, accident, previous illness or pregnancy. Her menses began when she was fourteen years old and had been regular and of two and one-half days' duration and not profuse in amount.

On October 12, 1928, Mrs. T. had her last period. I first saw her on May 26, 1929, previous to which time she had been under a physician's care for several weeks on account of swollen feet and headache. At this time she had a generalized edema, her urine was loaded with albumin and casts and her systolic pres-

any kind of simple case of appendicitis unless he is able to handle any of the complications that that case of appendicitis or any other case of appendicitis might put up to him; because he doesn't know from the outside whether that case is a simple appendicitis or one that will show considerable complications once he is in the abdomen. And when we consider all of the clinical contingencies which may have preceded this obstetrical case, we can see that we may be confronted with considerable abnormal anatomy once we are in the abdomen. Appendicitis with its various complications may be one of the things that complicates this obstetrical risk for which we are now invading the abdomen. We may find massive adhesions and removing these massive adhesions we may do bowel obstruction. We should be able to repair such bowel obstructions. I don't think many of us have done abdominal surgical operations without unsuspectingly getting into somebody's bladder, and we should be able to repair that bladder.

As to difficulties in diagnosis, I am sure with those four cases Dr. Gill cited, they were probably diagnosed before he operated on them. I haven't been so fortunate in cases I have operated on, and particularly, I am thinking of ectopic pregnancy. In one of the text-book cases I so well remember, honestly there was nothing missing in this history, and we say we are justified in operating on ectopic pregnancy on history alone. We are told we can make a diagnosis of ectopic pregnancy on the history and make it very definitely. Sometimes we can and sometimes we can't. In this case that I so well remember, there was no pathology, when we explored the abdomen. We don't know yet how to account for her symptoms because she had no underlying pathology.

Surely horn pregnancy is one which has happened in Dr. Gill's cases. They present great difficulty of diagnosis. And I believe that only a few of the obstetricians will be fortunate enough to diagnose any great percentage of his horn pregnancies. Even threatened abortion is something that happens probably to every multiparous woman. But it is simple in its diagnosis. But we don't know whether this threatened abortion is ectopic in nature or whether there is some other reason for the bleeding in this particular case.

As to myomata, probably every gynecologist should operate. A myomatous uterus is associated unsuspectingly with pregnancy. Surely the mistake has been made as frequently in the past and is probably being made today, and perhaps the obstetrician and gynecologist of the future will not be so much better than the rest of us that they won't still make the mistake. Even a retroflexed uterus gives us errors, and makes probable errors of diagnosis.

Gall bladders are not entirely out of the field of symptoms that present themselves as being referred to this organ in the lower abdomen.

I would suspect that the first case Dr. Gill reported of a ruptured uterus for five months was a case of hypo-pituitarism, that we see in the underdeveloped, probably accounting for the poor circulation and disturbed anatomy which wouldn't allow

a full term pregnancy to take place within the cavity of such a uterus.

That gives us difficulties of diagnosis. I have had plenty of them. I have made my proportion of mistakes and I am afraid I will not be entirely armor-proof from this time on. I am sure that we should demand that the perfect obstetrician should be able to take care of practically any situation in the abdomen, and surely in the lower abdomen, which may confront him, when he has opened the abdomen. The surgeon demands that of the man who is facing what we suppose to be a simple appendectomy, and we can demand no more of the obstetrician.

Dr. Gill (in closing): I have just a few minutes' time at my disposal. I have some slides which might advantageously demonstrate some of the conditions which we had here mentioned. (7 slides are shown.)

I want to thank Dr. Maple for his kind discussion in this paper. I wish to say merely that obstetrics needs more men who specialize in this line of work; men to take care of the vast amount of pathological material which goes to the general practitioners and which they, the general practitioners, are not properly prepared to handle; now, if this Society can have the program for this work, I am sure they will find enough men interested in the subject to furnish papers and furnish material to make it worth while for every one concerned, but especially for those men who are interested in, or who practice obstetrics particularly.

## TREATMENT OF VERRUCAE BY LOCAL INJECTIONS OF BISMUTH

HAROLD SHELLOW, M. D.

CHICAGO

The results of the treatment of verrucae have always been uncertain, as is shown by the number of methods which have been recommended. While it is well recognized that the best results have been obtained with the use of radiotherapy, this measure is not always available and is not invariably successful. It is for this reason that the measure to be described was developed.

The use of heavy metals for the treatment of verrucae, particularly mercury and arsenic in the form of arsphenamine, have been reported as giving a high proportion of favorable results. C. J. White<sup>1</sup> and Howard Fox<sup>2</sup> successfully used mercury internally. Sutton<sup>3</sup> found sulpharsphenamine beneficial as did Lindsay<sup>4</sup> neoarsphenamine. In 1932, Lurie<sup>5</sup> recommended intramuscular injections of bismuth for the treatment of verrucae. It was felt that if the metallic element itself was responsible for cures, the local use of the same drug might be of equal or greater

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value. As a result, a series of cases was treated in this way.

Since bismuth had been used intramuscularly in the palmar and plantar varieties of verrucae, the local method was first tried on these types and later extended to all varieties. It was felt that a soluble form of the drug could be more advantageously used.

The aqueous 1.5 per cent. solution of bismuth sodium tartrate was selected and employed in the following manner: the skin about the lesion is

will be procured. From  $\frac{1}{2}$  to 2 minims are injected, according to the size of the lesion.

In from 1 to 3 days after the injection of the bismuth preparation, a dark hemorrhagic area appears, visible through the keratotic surface. This denotes that the drug has "taken." In the markedly keratotic hard type of ordinary verruca vulgaris this phenomenon may not always be seen. In most cases, from 1 to 3 days after the first injection there has been either a complete cessation or a marked diminution of pain. The



Fig. 1. Left: Painful verruca of palm showing erythematous border. Right: Appearance 6 weeks following one injection of bismuth locally.

prepared by washing with soap and water, then iodine and alcohol are applied. Using a fine hypodermic needle, the skin is pierced just outside the zone of hyperkeratosis and directed downwards and inwards towards the base of the verruca at the most active point, keeping the end of the needle just above the corium. It will be found that it is very difficult to inject the solution and a good deal of force is required because of the resistance of the tissue. Unless this resistance is felt, the solution will not be injected at the proper site. If the solution enters easily, as a rule no results

peripheral redness that so often accompanies the painful verruca disappears in from 2 to 7 days. All papillomatous lesions flattened out decidedly after the first injection, and in the plantar or palmer types, the surface became smoother. It was noted in six instances of deep-seated, non-elevated lesions of the palms and soles that after the first injection they became elevated and papillomatous, but this was followed by complete disappearance with subsequent injections.

If within 7 to 14 days following the appearance of the hemorrhagic center the top of the verruca

has not come off or the central portion has not fallen out, the keratotic tissue can be removed to determine if any activity is still present. In most instances, after a lapse of 14 to 17 days following the initial injection, the removal of this hemorrhagic keratotic center reveals an underlying normal appearing epidermis. If after 2 weeks of further observation, an active verrucous tissue is seen, the lesion can be reinjected.

All verrucae were observed from a period of 4 weeks to 3 months but due to the irregularity in attendance of some patients, the exact time for complete cure was not determined in all

firm pressure. No lesions required more than a total of 3 injections.

A total of 97 lesions occurring in 73 patients were injected, most of them having been previously treated by other measures—89 were cured, 5 improved, and 3 showed no improvement; 67 lesions were of the painful palmar or plantar variety, 1 of these being unaffected by treatment, and 2 were improved; 18 verrucae of the vulgaris type occurring on the dorsum of the hands or feet disappeared, 3 were improved, and 1 did not respond. Of the 97 lesions treated by the local method, 42 required but 1 injection, 37



Fig. 2. Left: Two painful lesions with wide hyper-keratotic peripheries. Right: Showing appearance after 2 injections of bismuth locally. The central verruca which had not completely disappeared required one additional injection.

cases. The epidermis was usually normal in appearance in from 4 to 8 weeks following the first injection. In many cases, hyperkeratosis persisted in the peripheral portion of the lesion following the rapid involution of central activity and this was treated with a 20 per cent. salicylic acid ointment. It was noted that in those cases in which activity was still present after the first injection, the pain, if not entirely gone, was almost negligible and was only elicited upon very

needed 2, and 18 disappeared after 3. One case of multiple papillomatous verrucae on the glans and corporis penis which had not responded to any previous methods was cured by the local injections of bismuth as were 2 cases of multiple papillomatous, rough-topped lesions on the dorsum of the hands.

It is, of course, well known that verrucae will frequently involute following any type of trauma. In an attempt to determine the influence of this



factor alone, 32 lesions were injected locally with normal saline instead of bismuth; 29 of these showed no change after 3 injections, while 3 lesions disappeared. None, however, showed the

characteristic hemorrhagic center; 18 of these were of the palmar and plantar type, and 14 were of the vulgaris type.

An attempt was made to employ injections of a



Fig. 3. Left: Appearance of lesion following 10 intramuscular injections of bismuth. Right: Appearance 4 weeks following the use of bismuth locally.



Fig. 4. Left: Lesion which had recurred several times following the use of various methods except radiotherapy. Right: Showing results 5 weeks following one injection of bismuth locally.

1 per cent. bichloride of mercury solution as a further control but this practice was discontinued because of the extreme pain produced by the injection of this drug.

In another series, 18 cases were studied to determine the effect of the administration of bismuth intramuscularly. In these cases the insoluble salt of potassium bismuth tartrate with butyn was given; 0.2 Gms. in adults and 0.1 Gm. in children. Of the 18, 4 were cured, 1 improved, and 13 showed no results in from 5 to 13 injections. All of those that did not respond to the intramuscular method cleared up with local injections. It is interesting to note that one patient while under treatment by intramuscular injections for verruca plantaris developed 4 new lesions of the same type.

In two patients with verrucae vulgares who had received antisyphilitic treatment with neoarsphenamine, mercury, and bismuth over a period of many months there was no involution of the lesion and one patient with verrucae developed more lesions while receiving antisyphilitic therapy. All of the verrucae disappeared promptly following local injections of the lesions.

The local injection of verrucae with bismuth solution is not intended to replace the other methods of treatment but offers a simple and satisfactory measure giving results which compare very favorably with those secured by any other means of treatment. The relief of pain which is obtained shortly after the injection in every case, is at least equal to the analgesic effect resulting from the use of radiotherapy and particularly recommends the use of this measure in cases with painful lesions, especially where x-ray and radium cannot be employed. An outstanding feature was the response to this method in cases in which verrucae had either failed to involute or had recurred following the use of other measures.

#### SUMMARY

1. A series of all types of verrucae were treated by injecting an aqueous 1.5 per cent. solution of bismuth sodium tartrate locally. Cures were obtained in 91.7 per cent. of the lesions, the best results occurring in the plantar or palmar types.

2. Traumatization by injections of saline were used as a control with cures in 9.3 per cent.

3. A series of cases treated by the intramuscular injections of bismuth resulted in 22.2 per cent. cures.

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#### GASTROINTESTINAL OBSTRUCTION SIMULATING MALIGNANCY

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The diagnosis of malignancy in the gastrointestinal tract is frequently made upon the assumption that surgical interference may be a benefit to the patient while procrastination will be disastrous. The object of this paper is to show that preoperative diagnosis of malignancy and operative diagnosis of the same type is frequently proven erroneous by the subsequent history of the patient. What we should attempt to do is to try and make a differential diagnosis between malignant and non-malignant obstruction because the majority of the non-malignant types will improve under medical care and be in much better shape afterwards.

In the region of the cardiac end of the stomach we have seen the diagnosis of malignancy made even by the bronchoscopists and have seen the patient survive and get well without any surgical or Roentgen ray interference. The differential diagnosis between cardiospasm and malignancy should be relatively easy with the x-ray. I have had two cases in which there was a twisting of the lower end of the esophagus, one of unknown origin and the other following pneumonia with lung abscess, and the diagnosis of malignancy was made by the attending physician following an esophagoscopy without an x-ray examination of the chest. Both of these patients have survived the time in which death should have taken place, one of them eleven years.

At the pyloric end of the stomach we have had several cases in which a diagnosis of pyloric ob-



struction with tumor formation was made. Two of these did not submit to operation, one of them of eight years' standing, is now seventy-five years

of age and in very excellent health, and the other has since died from an intercurrent infection but whose obstruction completely disappeared. We have also seen some in which the diagnosis was



Fig. 1. Diagnosis: Malignancy of the esophagus thirteen years ago. Patient still alive and well.



Fig. 2. Diagnosis: Adhesions pulling esophagus to the right inducing obstruction of the cardiac end of the stomach. Esophagoscopy revealed normal mucous membrane.



Fig. 3. Six-hour residue stomach. Operated on and closed up and report sent to the family physician that he would die in two or three weeks. Died nine years later of hemiplegia.



Fig. 4. Twenty-four hour residue. Exploratory laparotomy. Surgeon made diagnosis of inoperable carcinoma in 1927. Patient alive and pursuing original occupation.



Fig. 5. Twenty-seven hour residue. Cardiospasm with edema. Has had three similar attacks. Patient still alive and in good health.

made on the operating table confirming the x-ray diagnosis. One of these was fourteen years ago upon whom I made the diagnosis and the patient was operated on by surgeons in another institution. The abdomen was closed without doing anything to the stomach and the man is still farming in Northern Indiana. One case similar was operated on by one of our group and seven



Fig. 6. Multiple polypus of the stomach, 1928.



Fig. 7. Same patient as previous number. Taken six hours later. Patient in good health pursuing gainful occupation.

years later the man is still pursuing a gainful occupation without any gastric distress.

Another case whose stomach I first observed sixteen years ago was subsequently operated upon



Fig. 8. Diagnosis of carcinoma of sigmoid made elsewhere in 1929.

Diagnosis: Multiple diverticuli. Patient treated for this. Patient in good health and still practicing medicine.



in Minnesota and only an exploratory operation was performed. He was given a prognosis of three weeks to live. He died nine years later of an intercurrent infection without any further trouble from the stomach.

Multiple polyps of the stomach will cause filling defects that can easily be mistaken for malignancy. I had one case in which the man would submit to nothing and is now 5 years later in

the sigmoid and produces a smooth contour in distinct contrast to the rough irregularity of a malignancy. Polyps of the rectum will show filling defects with the x-ray and along with the history of bleeding and pain frequently leads to a diagnosis of malignancy but the use of the sigmoidoscope will prove the diagnosis and the patient will get well by simply removing the polyps.

The object of this paper is to bring out the fact that there is quite a degree of error in diagnosis of malignancy. It is impossible to state this in percentage but it is quite evident that these unavoidable errors would likewise give rise to reports of cures of malignancies by various methods when as a matter of fact malignancy did not exist and so I believe it is necessary to



Fig. 9. Diagnosis: Carcinoma with obstruction made in 1933. Patient still alive and in good health. Relieved of symptoms.

good physical condition and his stomach is giving him no trouble whatever.

One man had a diagnosis elsewhere of obstruction of the transverse colon which later proved to be a result of a gall bladder condition with the gall bladder extending and pressing the wall of the colon. This man refused to submit to operation on the gall bladder four years ago and was seen just recently for another condition and stated he no longer has any trouble with the colon. Multiple diverticuli will also cause similar findings to that of malignancy but the repeated use of barium enema pictures in conjunction with belladonna will sooner or later confirm the diagnosis.

In the region of the rectum inflammatory processes, such as amebic dysentery, cause a granuloma which extends well up the wall of



Fig. 10. Diagnosis had been made of carcinoma of the rectum. Sigmoidoscopy revealed multiple polyps on one pedicle. Removed and patient well.

make a more accurate diagnosis before conclusions can be drawn as to the results of malignant therapy.

#### DISCUSSION

Dr. F. O. Fredrickson, Chicago: This paper is indeed interesting, especially the method by which Dr. Deneen has presented his subject.

Speaking of obstruction, particularly obstruction of the pyloric end of the stomach due primarily to peptic ulcer, and in which the patient is constantly regurgitating food and material and at times vomiting the clear gastric secretion, one may think of malignancy. These

patients may be emaciated and lose considerable weight. The obstruction in many of these cases is due to the spasm or edema of the pylorus, or there may be an increased night secretion. In the proper treatment of these cases, by means of neutralization and nightly aspiration the amount of retained stomach contents may in many instances be reduced from 600 to 700 c.c. over a short period of time to a very small amount, thereby avoiding surgical intervention.

With regard to obstruction of the esophagus, Dr. Deneen mentioned cardiospasm, not usually requiring surgical measures, intrinsic causes as benign tumors, cicatricial tissue, etc., also extrinsic causes as pressure from aneurysm of the aorta, enlarged mediastinal glands, and at times pericarditis with marked effusion.

Dr. Deneen has mentioned the spasm of the colon which is very common in spastic colitis in exceedingly nervous patients, and considered that question very carefully, indicating roentgenologically that the administration of antispasmodics, such as atropine, will relieve these spasms and the apparent obstruction.

## THE PRESENT TYPHOID FEVER SITUATION IN ILLINOIS

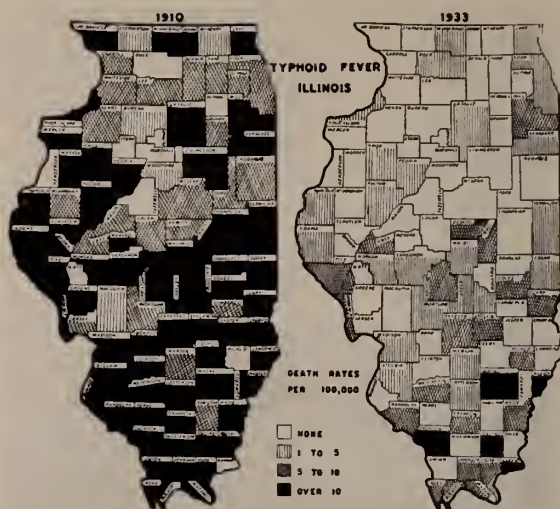
B. K. RICHARDSON

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The downward course of typhoid fever during the last quarter of a century represents one of the outstanding achievements in the whole history of sanitation and the practice of preventive medicine. Indeed it is difficult to appraise accurately the magnitude of social and individual benefit that has derived from control over this disease in Illinois alone. If typhoid fever had been as prevalent last year in Illinois as it was at the turn of the century the number of sick from that disease would have been greater than the entire population in any one of more than 57 counties. Approximately 30,000 people would have had the disease, a number greater than the population in any but the 16 largest cities of the State.

Mortality from typhoid fever would have been measured in figures only slightly less striking. In 1904, for example, only one county reported no deaths from this disease. Last year 53 counties had a clean record in this respect. In 1904 no less than 82 counties experienced death rates from typhoid fever in excess of 5 per 100,000 population. Last year only 23 counties had rates



Map 1.

in that category. It may be said, therefore, that sanitation and other preventive measures actually prevent an average of more than 25,000 cases of sickness and upwards of 2,000 deaths from typhoid fever annually in Illinois. If health departments did nothing else this work alone would fully justify their existence and the expenditure of all funds appropriated therefor.

The trend of typhoid fever in Illinois has been steadily downward. Since 1904 the death rate has declined from 37.7 per 100,000 population to 1.4 in 1933. This is a reduction of 96 per cent. The number of deaths fell from 1882 in 1904 to 110 in 1933.

Unfortunately the improvement has not been uniform from a geographical standpoint. Formerly the larger cities experienced the highest prevalence and mortality rates. Now the highest rates prevail in small communities and rural districts. Out of 1,633 cases reported during the

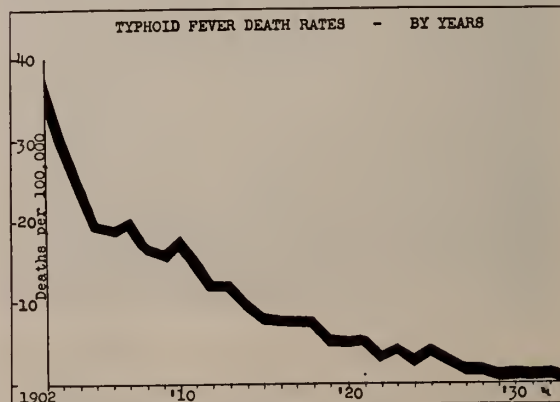


Chart 2.



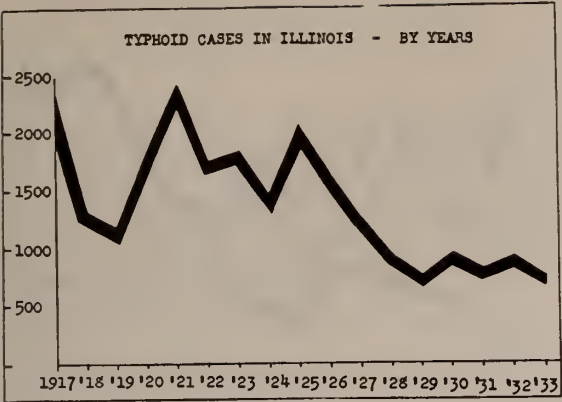


Chart 3.

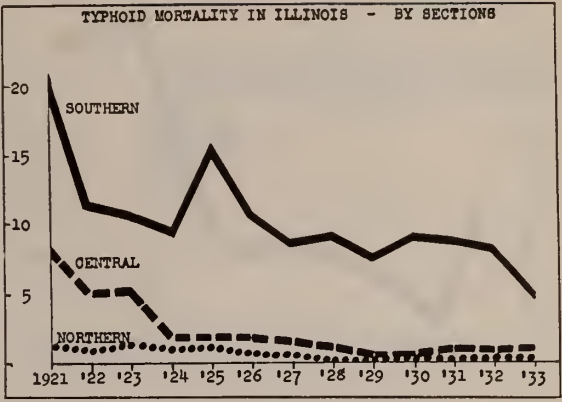


Chart 5.

last two years no less than 1,015 were in communities of less than 5,000 inhabitants and on the farms. The highest prevalence was in communities of less than 1,000 population, with case rates of 33 per 100,000 population in 1933. Next comes municipalities of from 5,000 to 10,000 with an average rate of 19, followed by communities in the 1,000 to 5,000 range and strictly rural areas with rates of 17 and 15 respectively. For cities with over 10,000 population the prevalence rate in 1933 was only 4. These rates corresponded exactly with the prevailing sanitary conditions in respect to sewage disposal, water supplies and milk supplies.

Cases of Typhoid Per 100,000 Population.		1933		1932	
Population Groups	Cases	Rate	Cases	Rate	
Under 1,000 .....	107	33.2	123	37.1	
5,000 to 10,000 .....	75	19.0	113	28.6	
1,000 to 5,000 .....	102	16.9	153	25.4	
Rural .....	203	15.1	327	24.3	
Over 10,000					
(Exclusive of Chicago) ..	215	4.3	215	4.3	

Another interesting phase of the geographical distribution relates to larger areas. If the State

is divided about equally into three districts, the northern, central and southern, it is found that typhoid fever prevalence in the 35 southern counties ranges from eight to twelve times greater than that in the 33 northern counties and more than twice that in the central counties. The downward trend in the southern portion, moreover, has been at a lesser degree and more subject to fluctuation than that in either the northern or central areas. The 1933 mortality rate in the southern third of the State was 5 per 100,000 population against a rate of 2.3 in the central and 0.6 in the northern third. When Chicago, which usually has an exceedingly low rate from typhoid fever, is excluded from consideration, the northern third experiences a mortality almost identical with that in the central third, a rate of 2.3 in 1933.

This geographical inequality, which is not confined to Illinois, relates directly to the adequacy of control measures. During the last twenty-five years, for example, the death rate from typhoid fever in Kentucky declined from 46 to 12 while

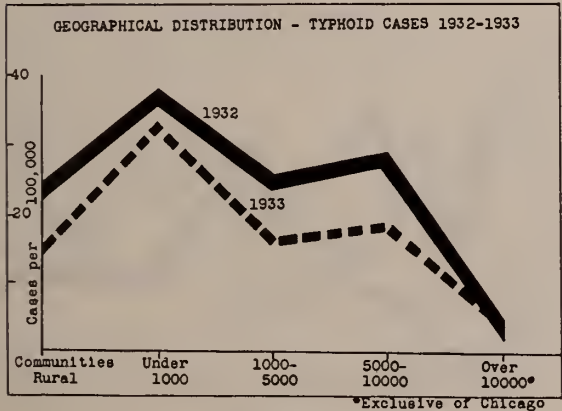


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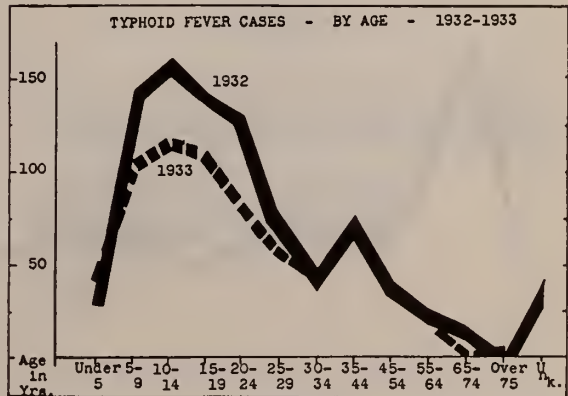


Chart 6.

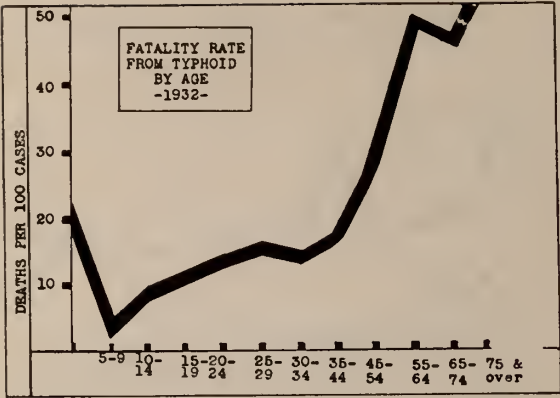


Chart 7.

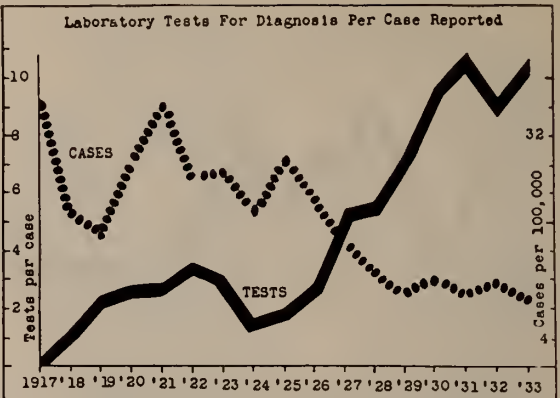


Chart 9.

in North Carolina, a state quite similar in climate and population, the rate went down from 69 to 4. During the same period the rate in Illinois was reduced from 16 to 1.7 while that in Missouri fell from 32 to 5. Thus the rate in Illinois and North Carolina was reduced by 94 per cent while that in Kentucky declined only 74 and that in Missouri only 84 per cent. These are significant differences for states comparable with respect to latitude and population.

The southern third of Illinois, which experiences a higher typhoid rate than the remainder of the State, is more sparsely settled, has fewer public water supply systems in proportion to the population, has a lower per capita income and a larger number of insanitary privies than the other sections. These conditions doubtless have a direct relation to the higher typhoid rate. The lack of sanitation makes possible the spread of typhoid through seepage water from privies, by flies and through milk contaminated by carriers.

The age distribution of typhoid fever indicates that this is a childhood disease to a much greater degree than is ordinarily supposed. The highest incidence occurs among children in the 10 to 14 age group while the rate among children in the 5 to 9 group is but slightly lower than that in the 15 to 19, and exactly the same as that in the 20 to 24 group.

Cases of Typhoid by Age, 1932 and 1933, Down-State Illinois.

Age in Years	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35-44	Over 44	Total
Cases	71	249	279	254	216	133	92	142	154	1590
Annual Rate per 100,000	10	31	35	34	31	20	15	11	7	18
Deaths per 100 cases	11.6	3.9	6.2	13	13.1	15.8	15.3	16.1	36	11.4

The incidence rate of typhoid fever in down-State Illinois during the last two years has ranged from 31 to 35 per 100,000 among people between four and twenty-five years of age. For the twenty-five to twenty-nine age group the rate dropped to 20 and declines rapidly as age advances to higher levels. Based upon the experience of the last two years, it appears that the

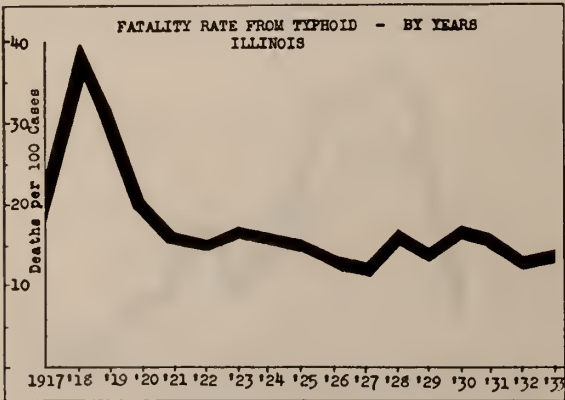


Chart 8.

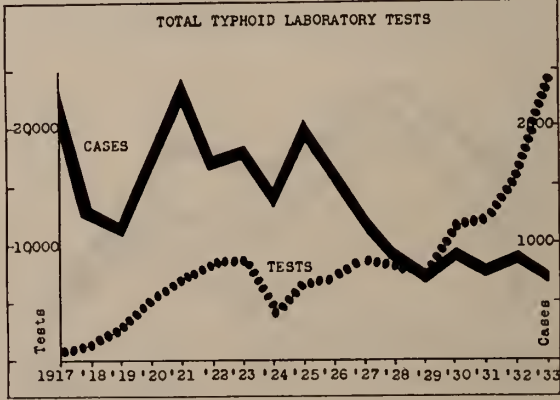


Chart 10.



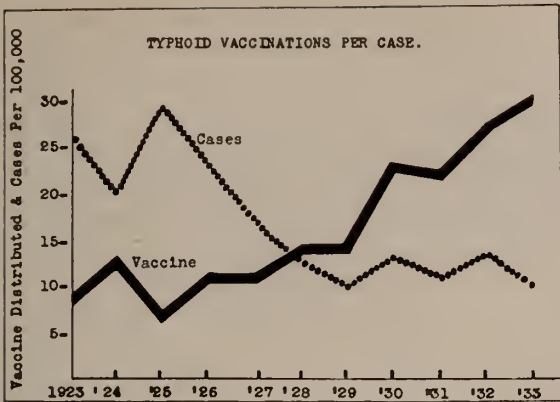


Chart 11.

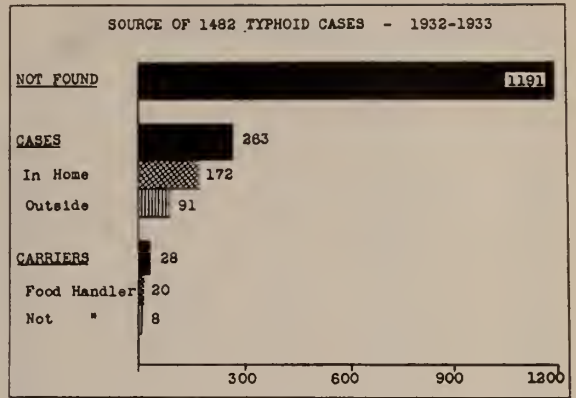


Chart 13.

chances of acquiring typhoid fever after age 30 are quite remote. This analysis indicates that preventive efforts should be most fruitful, under present conditions, if applied chiefly to children and particularly those from 10 to 20 years of age.

The liability of fatal termination is least among children in the 5 to 9 age group and greatest among people over 44. Only 4 out of each 100 patients in the 5 to 9 group fail to recover while 36 out of each 100 patients among people over 44 succumb to the disease. The proportion of fatal cases among people between these age groups varies from 6.2 per 100 in the 10 to 14 group to 16 per 100 in the 35 to 44 age group. For children under 5 years of age the proportion of fatalities is high, 12 per cent.

The general fatality rate from typhoid fever since 1917 has varied from 39 to 13 deaths per 100 cases reported. There were 22, 39 and 38 deaths per 100 cases for the years of 1917, 1918,

and 1919, respectively, while for 1931, 1932 and 1933 the rate of fatal termination was 16, 13 and 14, respectively, per 100 cases. This decline in the proportion of fatal cases is doubtless due to more complete notification during recent years. This improvement in case reporting is manifestly of the greatest importance to effective control procedures.

A striking illustration of the increase in extra-sanitary control procedures is found in the volume of diagnostic laboratory tests and the amount of vaccine distributed by the State Department of Public Health. In 1917 there were three times as many cases reported as there were tests for typhoid fever made in the laboratories of the Department. The next year there was slightly more than one diagnostic test per case. From 1918 to 1926 the ratio of tests to cases average about 3 to 1. Since that year the proportion of tests to cases has increased until in 1933 there were 10.6 diagnostic tests for each case of typhoid fever reported in down-State Illinois.

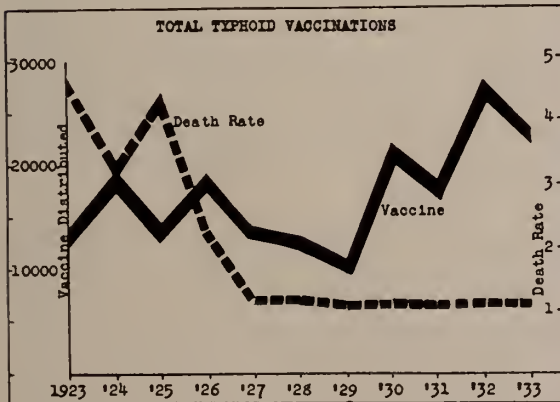


Chart 12.

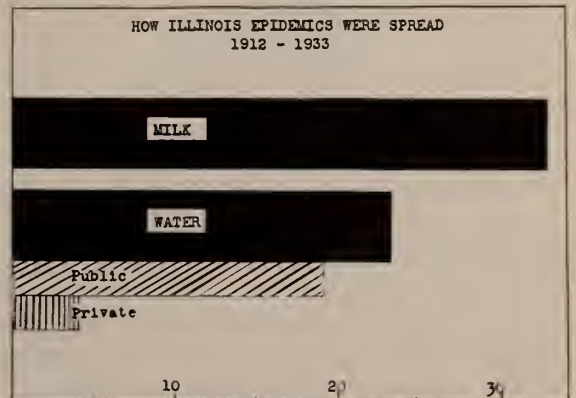


Chart 14.

Tests Made for Typhoid in the Diagnostic Laboratories of the State Department of Public Health.

	Widal and Cultures		Fecal and Urine	Total
	Number	Per Case		
1917	794	.3		794
1918	1,695	1.3		1,695
1919	2,950	2.4		2,950
1920	5,260	2.8	169	5,429
1921	6,939	2.9	478	7,417
1922	6,489	3.6	2,178	8,667
1923	5,771	3.1	3,070	8,841
1924	2,524	1.7	1,843	4,367
1925	4,209	2.0	2,613	6,822
1926	4,804	2.9	2,253	7,057
1927	6,948	5.4	1,945	8,893
1928	5,562	5.8	2,830	8,392
1929	5,797	7.5	1,874	7,671
1930	9,231	9.6	2,352	11,583
1931	8,834	10.9	3,256	12,090
1932	8,690	9.3	7,117	15,807
1933	8,239	10.6	11,250	19,489

The number of fecal tests, moreover, which has been made in an effort to detect typhoid fever carriers has increased from 169 in 1920 to 11,-250 in 1933. The volume of these tests has increased enormously during recent years because of routine annual examinations on specimens from all pasteurized milk handlers and of food handlers at the State Fair.

Vaccine distribution has increased with almost equal rapidity. In 1923 the amount of vaccine distributed by the State Department of Public Health was sufficient to immunize 8 people per case reported. By 1933 this proportion had risen to 30 immunizing doses per case. The volume of vaccine distributed went up during the same ten years from 14,085 to 28,192 immunizing doses.

Immunizing Doses of Typhoid Fever Vaccine Distributed by State Department of Public Health.

	Total	Per Case	Cases Per 100,000
1933	23,452	30	10
1932	28,192	27	13
1931	18,625	22	11
1930	22,055	23	13
1929	11,020	14	10
1928	13,137	14	13
1927	14,390	11	17
1926	19,240	11	23
1925	14,558	7	29
1924	18,684	13	20
1923	14,085	8	26

As prevalence has declined the epidemiological investigations have grown increasingly difficult. The source of an epidemic outbreak is usually relatively easy to determine. This is not true of sporadic cases. During the last two years, for example, 1,482 cases were studied by medical officers on the staff of the State Department of Public Health. Of that number the source of

infection was definitely determined in only 291 cases, slightly less than 20 per cent. It may be presumed that carriers were responsible for the bulk of the 1,191 cases, the sources of which were not determined. Secondary cases are comparatively rare. About 1 in each 4 cases studied during the last two years was traced to another case.

Sources of Infection, 1,482 Typhoid Cases Investigated in Illinois 1932-1933.

	Cases	Source of Infection				Not Found
		Cases	Carrier	Food Handler	Other	
		Home	Outside			
1932	837	90	43	1		703
1933	645	82	48	19	8	488
Total	1482	172	91	20	8	1191

The large percentage of undetermined sources of infection indicates the need of much more careful epidemiological service on the one hand

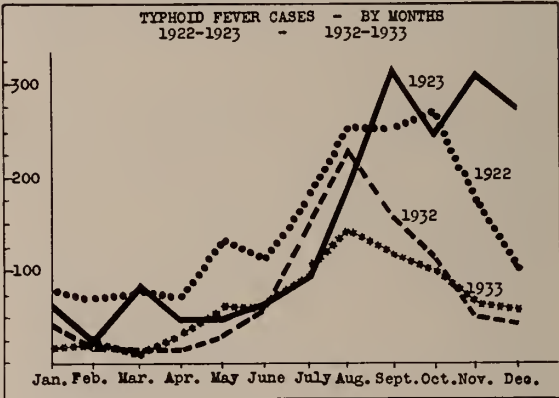


Chart 15

and more prompt notification of cases on the other. Frequently reports reached the State Department of Public Health only after the lapse of several weeks from the date of onset. Not infrequently the first victim of the disease in a community has recovered or died and several other cases have developed before information about the situation reaches the Department. This delay of notification frequently makes impossible the success of epidemiological study and leaves the community unprotected by adequate control measures.

Under present-day conditions, milk and dairy products are more frequently the means of spreading typhoid fever than water. Since 1912 there have been 33 outbreaks attributed to contaminated milk in Illinois and only 23 attributed to polluted water. This is explained by the fact that sanitary supervision over public water sup-



plies and sewage disposal is more adequate than that over milk. Not only are public water supplies fewer in number, 544 compared with thousands of milk dealers, but human contact is much less intimate and frequent in the production and delivery of water than with milk. This increases the opportunity of contaminating milk and makes more difficult the task of supervision.

Low incidence curves in typhoid fever make no difference in the seasonal trend. Almost invariably the prevalence peak occurs in late summer or early autumn. Whether cases are few or many the prevalence curve begins a sharp upward trend in May or June and rises steadily to the maximum. The decline as winter approaches is usually more precipitous than the upward course.

This review of the present typhoid fever situation points the way toward further control over the disease. Selective efforts concentrated chiefly in small communities and rural districts and particularly in the southern portion of the State may be expected to yield fruitful results. In planning a program it must not be forgotten, moreover, that typhoid fever is predominantly a disease of children and youth.

### DISCUSSION

Isaac D. Rawlings, Chicago: My discussion of this excellent paper by Mr. Richardson will be confined to Chicago's experience with typhoid fever.

In 1891, as a medical student in Chicago, I had the experience of seeing this disease at its highest peak when entire hospital wards at the Cook County Hospital, the Mercy Hospital and St. Luke's Hospital were filled with patients with this disease. What was true of these three hospitals was true of all other hospitals in that city.

In fact, typhoid fever in Chicago was then so prevalent that much discussion arose as to the necessity of postponing the proposed Columbian Exposition. Chicago, with one-third of its present population, had approximately 20,000 cases and almost 2,000 deaths from typhoid fever that year. Over 7 per cent. of all deaths in Chicago in 1891 were due to typhoid fever. This great prevalence was due to contamination of the drinking water taken from Lake Michigan, through sewage which was diverted into the lake furnishing the water supply.

After the opening of the Drainage Canal, in 1900, the total deaths from typhoid fever decreased by one-half from 1900 to 1908, as compared with the 8 years prior to 1900. This was due to the improvement of the drinking water supply by taking a part of the sewage out of Lake Michigan and sending it down the Drainage Canal.

The death rate from typhoid fever for the years 1909 to 1915, inclusive, was again cut in half by intercepting

all sewage north of the Calumet River and diverting this from the Lake Michigan water supply into the Drainage Canal, plus the chlorination of Chicago's water supply during the latter portion of this period.

Another marked decrease of more than one-half in the number of deaths from typhoid fever during the years 1915 to 1921 resulted through the almost complete pasteurization of the milk supply of Chicago. Since 1916, there has not been one outbreak of typhoid fever traced to the milk supply. Since 1918, with the exception of an outbreak of typhoid from oysters infected at their source and a sewage contamination at the 68th Street pumping station, Chicago's typhoid problem has been chiefly the control of individuals who contracted their infection outside of Chicago, usually while on vacation.

Eighty per cent. of all cases are hospitalized and all contacts in the home are immunized so there is left the problem of the control of the typhoid fever carriers in Chicago. For more than 12 years no typhoid patient has been discharged from quarantine and supervision until two successive examinations of stools and urine are found free from typhoid bacilli. Carriers are controlled by constant supervision so that they are kept from handling foods. The contacts in the home are re-immunized every two or three years.

That progress is being made in the control of carriers is shown by the fact that in 1926 there were 49 typhoid carriers under close supervision, whereas at the close of the year 1933, there were but 34 known carriers. In an effort to locate and control typhoid carriers, the feces and urine of 2,500 food handlers have been examined during the past six years and in 1933, over 2,500 food handlers at A Century of Progress had similar examinations. As not one typhoid fever carrier was found by over 5,000 such examinations, I am of the opinion that in a community with a water and milk supply that is safe, with strict quarantine and termination requirements for cases, and with an adequate disposal of human wastes, the routine examination of stools and urine of food handlers, other than those who handle milk, is unnecessary as a public health measure.

In the past 7 years Chicago has had the enviable distinction of having the lowest average mortality from typhoid fever of any large city in the United States. In 1933, there were but 76 cases and 12 deaths. A record of but one death per month in 1933, as contrasted with 166 deaths per month in 1891, when the population was only one-third that of Chicago's present population, is an astounding accomplishment. In fact, with continued vigilance and application of the control measures mentioned, the typhoid fever problem in Chicago is now of minor importance.

Chicago's experience confirms every statement made by Mr. Richardson as to correct measures for control and the results that may be anticipated.

Dr. Gerald Cline, Bloomington, Ill.: As the essayist has shown, in the smaller communities throughout the down-state we also have typhoid fever. This especially has been in evidence the last year or so. Typhoid, like rheumatism, is a pediatric problem.

Mr. Richardson has given us statistical death rates throughout the State but he did not say anything about the complications of typhoid and here I wish to mention rheumatism as a very important one.

Vaccination among children even today is entirely too lax. I wonder how many of us as physicians during the summer months drive around the country with our own children who have not been vaccinated against typhoid. Every kid is a kid and he is going to drink out of a cup or pop bottle some place. Isn't it quite important, not only for our children, but for all others, therefore, to have this protection which we know is so reliable? How many of you in this audience have your own children protected? I am happy to say that I have.

No response.

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## MEANS OF REDUCING MORTALITY IN APPENDICITIS

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and

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CHICAGO

In discussing the possibility of reducing mortality from appendicitis it occurs to us that there is one type of the disease responsible for a large percentage of the fatal cases which has received very little attention in the literature, and which is much more dangerous than seems to be generally realized. In reviewing the literature on appendicitis mortality, and in discussing the subject with surgeons it is indeed surprising how rarely we see or hear any reference made to obstructive appendicitis. In the campaigns to educate the profession and public as to ways of reducing mortality, such as the Philadelphia campaign, we hear stressed the danger of catharsis, ice bags, heat, and postponement of operation, but never a warning as to the rapidity with which peritonitis develops in obstructive appendicitis.

Regarding the origin of appendicitis, Dudley P. Allen in 1879 theorized that in the descent of the cecum from its embryological position in the hypochondriac region to the right iliac fossa the position of the appendix in relation to the cecum becomes changed in such a manner that there is a bend in the appendix, and that the bend thus produced may embarrass emptying of the appendix so that the increased effort neces-

sary to empty itself causes hypertrophy of the musculature. The increased pressure at the point of flexion caused by the powerful contractions of the hypertrophied muscle produces irritation and inflammation with destruction of the mucosa and that as this destroyed mucosa heals a stricture forms. This stricture further interferes with the escape of mucus which produces repeated attacks of colicky pain, and when it can no longer empty itself, either due to the stricture, or from a concretion forming behind the stricture, distension may go on to perforation, or if the distension be sudden it can cause gangrene.

Since about 1900 C. van Zwalenburg has maintained that all appendicitis is of obstructive origin, and has done voluminous experimental work to prove his contention. He has devised a means of measuring and controlling pressure within the lumen of the appendix and concludes that with a pressure of 100 to 125 mm. of mercury in the arteries of the appendix and a venous and lymphatic pressure of 10 mm., if we have superimposed on this a constriction, kink, plug, or concretion which prevents escape of fluid into the cecum, this pressure increases enough to shut off the venous and lymphatic outflow and, with the arteries continuing to pump blood into the appendix, and the fluid content being increased by osmosis and secretion from the mucosa, this continues to increase the pressure until the appendix ruptures.

Professor D. P. D. Wilkie of Edinburgh divides appendicitis into two main groups, one of which he describes as acute inflammatory appendicitis, giving a clinical picture of malaise and nausea, vague abdominal pain becoming localized in the right lower quadrant, a rise in temperature and pulse rate, loss of appetite, a furred tongue and constipation, and tenderness over the right lower quadrant. On operation in such a case we find a red, congested and edematous appendix with inflammatory edema of its walls as the salient pathological feature. The second type he terms acute appendicular obstruction, with a dramatic clinical picture; colicky pain in the umbilical region, acute and spasmodic at first, later more continuous, with late rise of temperature, and a pulse which may be normal till gangrene sets in. There is usually some tenderness present. Wilkie maintains that approximately 90 per cent. of fatal cases of appendicitis are of the obstructive type.



Howard M. Clute of the Lahey Clinic reports a series of four hundred and thirty-four cases of acute appendicitis with nine deaths, eight of which were of the obstructive type, showing approximately 90 per cent. of their mortality to be due to obstructive appendicitis. He describes one typical case in which the appendix was removed six hours from the onset of the first symptom and showed a complete obstruction by a fecalith and the distal end was covered with fibrin and filled with pus. He is sure that they have been able to reduce definitely their mortality rate since their attention was called to Wilkie's work, and they recognized how dangerous obstructive appendicitis really is.

With these statements in mind we set out to keep careful record of all the appendectomies performed at the Ravenswood hospital during a period of one year, with the hope of accomplishing three things: first, classifying symptoms by which we could recognize obstructive appendicitis before operation so as to be fully cognizant of the seriousness of the situation with which we were dealing; second, to compare the morbidity of obstructive and inflammatory appendicitis; third, to compare the mortality of the two types of the disease. If successful in these three purposes we felt sure their accomplishment would materially assist us in our one main object of reducing mortality from acute appendicitis.

We obtained this information by attaching to all appendectomy records a special questionnaire which the operating surgeons and internes obligingly filled out for us as to symptoms, time elapsed between first symptom and operation, evidence of obstruction of the appendix at the time of operation, and general appearance of the appendix. This record was completed by filling in the progress notes as to complications and length of stay in the hospital and lastly, through cooperation of the pathologist, we filled in a careful description of the appendix with especial notation as to whether or not there was any evidence of obstruction to the lumen when the appendix reached the pathologist. This double check between surgeon and pathologist is necessary because an acute angulation may be relieved during the process of removal and not be noted by the pathologist, while a constriction of the lumen might be plainly visible to the pathologist and missed by the surgeon.

During the twelve months we were making this study four hundred and sixty-one appendectomies were performed. Of these, two hundred and forty were for chronic appendicitis, one hundred and seventy-one were for acute appendicitis, forty-eight were appendices removed prophylactically in the course of abdominal operations for some other condition, one was a carcinoma of the appendix, and one was, in our opinion, a right-sided pneumonia in a child with peritonitis mistaken for appendicitis.

*Comparison of Symptoms.* The patients whose appendices later proved to be acutely obstructed usually gave the following symptoms: sudden cramp-like, colicky pain followed by nausea and vomiting, and frequently the vomiting was repeated several times; moderate tenderness over the appendix, but rarely any rigidity till quite late, and frequently none at all; elevation of white cell count to from twelve thousand to twenty thousand; very little, if any, rise in temperature and pulse rate. In general, there were usually very few physical findings to explain the severe pain the patient complained of, and in several cases the surgeon was rather hesitant to operate early because of the lack of rigidity, and elevation of temperature and pulse. The obstructive cases resembled right ureteral obstruction more than they did the typical text-book picture of acute appendicitis, and we would urge the elimination of the possibility of this condition being present before advising operation.

One of several of our patients who illustrated how rapidly a serious lesion can develop was a young adult who complained of severe colicky pain and repeated vomiting. He showed no rigidity but moderate tenderness at McBurney's point, normal temperature, and leukocyte count of eighteen thousand nine hundred. He was operated on eight hours after the first symptom and the pathologist reported obstruction distal to a firm fecal concretion with acute diffuse suppurative appendicitis.

The patients whose appendices revealed an acute inflammatory condition with no evidence of obstruction usually showed pain, which was less severe, nausea and frequently no vomiting at all or just once, early rise of temperature and pulse, and marked tenderness and rigidity over the appendix, and in spite of these additional physical findings they did not appear as acutely ill as did the patients with obstruction.

*Comparison of Morbidity.* The average stay in the hospital of non-obstructive cases was 10.6 days while that of the obstructive cases was 13.6 days, a difference of three days per patient. The percentage of complications in the obstructive type was 7.2 while that in the inflammatory group was only 4.1 per cent. Drainage was necessary in 52.1 per cent. of the obstructive cases as compared to only 19.8 per cent. of the inflammatory cases. Gangrene was present in 27.5 per cent. of the obstructive cases and 6.2 per cent. of the inflammatory. Perforation occurred before operation in 31.8 per cent. of the obstructive cases and in 9.3 per cent. of the inflammatory type.

Obstructive appendicitis is much more prone to produce general peritonitis than is inflammatory appendicitis because when the appendix becomes obstructed suddenly there is a rapid series of pathological changes inside the lumen without much peritoneal irritation to attract the omentum over to surround it and wall it off before it perforates. In the inflammatory type the local peritoneal reaction tends to cause a protective wall to be set up by the omentum and intestines to receive the contents of the appendix in case of rupture and prevent a spilling of its contents into the free peritoneal cavity. This was illustrated in this series by the fact that only 27.2 per cent. of the obstructive cases which perforated were walled off, while 55.5 per cent. of the inflammatory cases were well walled off before rupture. Of the cases operated on in less than twenty-four hours after the first symptom, 33.3 per cent. of the obstructive cases needed drainage while only 12 per cent. of the inflammatory ones had to be drained. Of the acute cases operated on in less than twenty-four hours after the first symptom, in which the pathologist reported acute suppurative appendicitis or gangrene, 61 per cent. of the obstructive cases gave a history of this being the first attack, while only 45 per cent. of the inflammatory cases gave such a history. This would lead us to believe that the obstructive type has much less tendency to subside without operation. Only 25 per cent. of our chronic cases showed any evidence of obstruction; which would also bear out this assumption.

A comparison of the complications following the two types of the disease further emphasizes the increased morbidity of obstructive appendicitis. Patients operated on for the obstructive

type showed the following complications: peritonitis and abdominal hemorrhage, intestinal obstruction, peritonitis and septicemia, pelvic abscess, parotid abscess with ear abscesses, ileus requiring enterostomy, wound abscess and cystitis. The inflammatory group developed the following complications: intestinal obstruction, peritonitis and toxemia, cerebral embolus, coronary embolism, pneumonia, wound infection and pyelitis.

*Comparison of Mortality.* Of the one hundred and seventy-one acute cases sixty-nine showed definite evidence of obstruction of the lumen, and ninety-six did not, and in six cases an abscess was drained and the appendix not removed. Of the sixty-nine obstructive cases three patients died, a mortality of 4.3 per cent. Of the ninety-six inflammatory cases three, a mortality of 3.1 per cent. These figures alone do not properly illustrate the difference in the severity of the two conditions as all three of the deaths in the obstructive group were definitely connected with the pathological condition in the abdomen, one dying on the tenth day from peritonitis and intra-abdominal hemorrhage, another on the seventh day from intestinal obstruction, and the third on the fourth day from peritonitis and septicemia, whereas only two of the deaths in the inflammatory group were directly attributable to the abdominal condition, one on the third day following a colostomy for obstruction, the second on the fourth day from peritonitis and toxemia, while the third died on the third day from cerebral embolus, having shown no temperature recording above 99.4 since the operation. Granting the elimination of this one case would show 60 per cent. of our mortality from acute appendicitis to be from the obstructive type.

While discussing mortality we should mention that our rate for the four hundred and sixty-one appendectomies was 1.9 per cent; of the two hundred and forty chronic cases, .83 per cent; of one hundred and seventy-one acute cases 3.5 per cent., and in forty-eight cases removed prophylactically there was one death showing a rate of 2.08 per cent. for this group.

By emphasizing the importance of acute obstructive appendicitis we do not wish in any way to minimize or detract from the laudable work which has been done in reducing the mortality by the campaigns against the giving of cathar-



tics, the resorting to the so-called "freezing" treatment and other impedimenta which procrastinating physicians and meddlesome friends have invented to prolong the time between the first symptom and operation. We are attempting to impress upon the surgeon the speed with which this condition progresses to a general peritonitis, so that he in turn may educate his colleagues and patients to the danger of delay and that he may have at his command statistics which will show that an attack of obstructive appendicitis is not prone to subside, but is likely to develop early suppuration, gangrene, or peritonitis, with a death rate that is appalling.

*Conclusions.* 1. There are definite symptoms which make it possible to make a diagnosis of acute obstructive appendicitis.

2. The morbidity of acute obstructive appendicitis is much greater than that of acute inflammatory appendicitis.

3. The mortality rate of acute obstructive appendicitis is higher than that of any other type.

4. If we are to reduce greatly the mortality from acute appendicitis, we must recognize this dangerous obstructive type and have the courage to operate early without waiting for rigidity and elevation of pulse and temperature.

In closing, we gladly acknowledge our indebtedness to our pathologist, Dr. Moore, the entire surgical staff, and the record and medical librarians of Ravenswood hospital for their splendid cooperation in the compilation of these statistics.

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#### DISCUSSION

Dr. Carl E. Black, Jacksonville: This paper is a step in advance in lowering the mortality of appendicitis. I am glad somebody still has the courage to present a paper on appendicitis. However, the whole question of lowering the mortality is a very large one. There are some phases of it that the surgeon himself is responsible for. Two years ago I presented to this Society some statistics on 1,605 appendectomies. In going over those cases certain facts were borne out in this way. You take the deaths from appendicitis, the great majority of them may call late cases. I was impressed by the fact that no case that had a rigid abdomen, no case that has a distended abdomen, no case that has albumin or casts in the urine, no case that has diacetic and acetone in the urine, no case that has a low kidney function below 40 should be a case for immediate operation. The cases that died in my analysis were cases with three or more of the above conditions to a very large extent. Of course, these are late cases, but the very fact that they are late cases is no reason why the surgeon should rush in and remove the appendix immediately. He should be sure that none of the findings above mentioned are present. Such patients will usually improve under intravenous glucose and rest under morphine, and become suitable and safe cases for operation. I think the surgeon has something charged up against him in rushing in and operating on some of these cases that are not in condition to be operated on, because they can be put in better condition. In other words, the pre-operative care of these patients is much neglected.

I am now analyzing another 1,000 cases and I am still seeing the same thing, though not in the same degree, so I think what was brought out in the first analysis has borne some fruit. Until we think of the patient instead of the appendix we are going to have a higher mortality than we should. The mortality in this series was low. Very few surgeons have produced a lower mortality than shown here this morning. The group, of course, was small. In a group of 1,000 or 1,500 cases you will find a continuous series of 100 or 200 that will give a very low mortality and if you base your conclusions for your hospital on that series you will be misled, because the next series will be quite different. Recently I talked to Dr. Quain of Bismark, North Dakota, who reported 1,000 cases with the lowest mortality I know of. He is now ready to report a second thousand with a somewhat increased mortality. I want to bring out that the patient himself must be considered as well as the local disease. Until we do that we shall continue to have a higher mortality than we should have.

Dr. H. P. Saunders, Chicago (closing): The subject of appendicitis, of course, is entirely too large to attempt to cover in such a brief paper as this. For that reason we left out the discussion of many salient features

and very important methods of reducing the mortality from appendicitis in the attempt to put over this one idea. If we can put over this one point of the danger of obstructive appendicitis and the rapidity with which it develops we will feel we have accomplished our purpose. We have put that point over sufficiently with our staff that we propose to continue to keep records of the classification of the obstructive against the non-obstructive cases, and we hope to present it at least before our staff at a later date in a much larger series.

I must say that as far as the hospital is concerned, the mortality from acute appendicitis happened to be larger last year than for several years, but that is beside the issue. If we can keep account of the obstructive cases and compare them with the non-obstructive cases, I think we will benefit by a larger series.

There is one thing I want to mention in passing in reducing the mortality of appendicitis, and that is cecostomy in cases in which there is every evidence of impending ileus. Many men have been practicing that for the last few years, putting in a drain in a healthy portion of the cecum, relieving the back pressure and the toxic symptoms that come on so soon after operating on a case with impending ileus and symptoms of obstruction.

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## PSYCHIATRY'S PLACE IN MEDICINE

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Occasionally statements are made which might lead some people to doubt as to whether or not psychiatry is a legitimate offspring of medicine. It is true that there are features which pertain to the nervous system and disorders thereof, which are not as important in other systems and the diseases centering in them. Some of these features will be mentioned. The main point will be a reminder that psychiatry is essentially a part of medicine and that while the psychiatrist can not give full measure of service without knowledge of other lines of medicine, the practitioner in other fields can not avoid meeting problems in which a nervous element is involved. One of the difficulties in evaluating psychiatry lies in the fact that it is in its very nature less tangible and concrete than some of the other fields and therefore it is not an easy task to limit it exactly, especially when it touches nonmedical fields. Medicine has had to meet all problems within its field however well or ill prepared it has been to meet them. This perforce has led to errors but emphasizes the criteria of results obtained, rather than theory. If psychiatry ac-

cepts this gauge, and to be included among other medical branches it could not do otherwise, a sane and increasingly useful future is assured.

If one turns to a consideration of the etiology of mental disorders one finds similarities and dissimilarities to other branches. If one were to think of the more common causes of illness some of the following would probably come to mind; the invasion of the body by organisms, fatigue, toxic states due either to exogenous or endogenous material, new growths, degenerative conditions, and accidents due to extraneous factors or predicated on preexisting disease. Disorders of the nervous system may be caused by any of the foregoing but in addition may be brought about by changes in the environment which do not actually come in physical contact with the body in the usual sense, for example financial loss or the death of a relative. This statement deserves amplification but space permits only two brief comments: first, there are not only unusual stresses such as the two examples given but also many lesser difficulties to face; second, personality, due to innate endowment, guidance, and other circumstances surrounding the past life, differs so greatly that what is a stress for one will be easily met by another.

It should be said here that there is full appreciation of the fact that the question of etiology has not been covered. The paper has not considered the possibility of such environmental factors, as do not actually touch the individual, playing a part in the production of disorders which do not affect the nervous system predominantly. It does call attention to a feature in etiology which has a more prominent place in nervous disorders than diseases of other types. It should help to orient the practitioner in his concept of psychiatry.

When the symptomatology of nervous disorders is considered one is confronted by some features which do not apply, at least to a comparable degree, in other types of trouble. Before this line of thought is developed the writer may affirm that he subscribes fully to the fact that it is the patient and not the individual system or organ that is involved in disorder. This concept has deservedly been emphasized and need not be dealt with here. It is true however that in particular conditions one function or organ may be pre-



dominantly affected and it is only in this sense that there is any suggestion of separating the nervous system from other systems.

Most other systems respond automatically to work needs which do not vary greatly from one day to another either in variety or amount. The nervous system is called upon to react to situations which differ constantly in importance and complexity. It can not be said that any other system will function exactly like the same system in another person in response to identical needs but the manner of reaction of the nervous systems of different individuals varies to a much greater degree in a given situation even though there is nothing to indicate an abnormal response. Due to these and other factors there results a greater variety of habits of functional activity of the nervous system of humans than of other bodily activities.

Some people are calm and others excitable. Some more easily become fearful or resentful than others. Under similar circumstances some behave conventionally whereas a few will be anti-social. These are but a few samples of ways in which an individual may react and each person has particular groups of habits of reacting.

It is important for the physician to keep these in mind since they color the complaints if the patient is ill and if intensified these mental habits actually constitute a definite disorder.

One need not feel that it is the task of the physician, even the psychiatrist, to right all wrong mental habits, presuming he thinks he knows enough to do so, until there are many more signs of an impending millennium than are now apparent. Yet there are very practical aspects of the question we can not avoid.

The usual manner of nervous response may become exaggerated in any illness and cloud the picture, or may become more marked in the face of some difficult environmental situation. A patient may complain of a pain and examination reveal an inflammatory condition which would be considered adequate cause of the complaint. In this instance the complaint of pain takes on the significance of an objective sign. In another case the degree of complaint is out of all proportion to the amount of inflammation found. Here a psychic element tends to distort the picture. In a third the patient speaks of pain but no material basis for the complaint is found and the

physician decides that pain in this case is indicative of faulty function somewhere and that very probably the nervous system is involved. Some might ask if faulty function can occur without a material basis. Most certainly psychiatrists do not believe more than others that disorder comes out of thin air. They feel that all mental function is on a material basis whether of a type which ordinarily might be termed "normal" or that called "abnormal," but that the manner of reaction of the nervous system varies so greatly in different people than an occasional deviation of response might well be of aberrant type. However this may be the fact remains that there are many mental illnesses with symptoms among which are those which would ordinarily signify structural change, but without demonstrable organic involvement, and from which the patients fully recover. One has to add that all do not recover.

There are many cases of fracture, infectious disease, or what not, in which mental habits previously established add symptoms which either distort the symptoms based directly upon the primary lesion or add complaints not ordinarily found in the illness. Thus where ordinary individuals might speak of a slight faintness the unstable patient will in some cases complain of marked dizziness. Moderate abdominal discomfort due to distention in some may be described as unbearable by those not used to bearing trouble with equanimity. There is such inter-relationship of conscious with unconscious functions that an objective sign such as distention may not only give rise to an exaggerated complaint but itself be caused by some faulty nervous mechanism. Fears, depression, restlessness, confusion, irritability, obsessions and euphoria are just a few of the conditions which may add to the more direct manifestations of organic disease. That it is essential for the physician to recognize the meaning of each symptom is obvious. One may quote Alfred Stengel who says ". . . the physician who underrates or ignores the psychic factors in disease, even the grossly organic diseases, loses an opportunity for effective treatment that would distinguish the successful from the unsuccessful medical practitioner."<sup>1</sup>

The knowledge that an increase in the respiratory rate is based upon a pneumonic process is

a positive acquisition, but the understanding that it is not based upon any gross change in the respiratory apparatus is also positive knowledge although obviously not an analysis. If hysterical convulsions are to be treated successfully one has first to understand that they are hysterical.

One of the very difficult situations is that in which a disturbance of the nervous system is initiated by symptoms which simulate disease centered in other systems. Such condition tries the souls of patient, relatives, doctor and nurse and often the two last mentioned particularly. Recognition of the actual situation helps to give the physician the command of the field without which he may feel that refuge on his part in a psychosis is perhaps not without compensations.

If it is desirable that the practitioner in other fields realize that psychic elements may enter into all diseases it is no less incumbent upon the psychiatrist to know that the presence of psychotic or psychoneurotic symptoms do not prove that an organic basis does not exist.

The case of a woman 41 years of age may be cited. This woman at 38 fell and broke an arm and a lump appeared in the left breast not long after. The breast was removed in December, 1925, when the patient was 40 years of age. She looked up the literature on the subject, decided the growth had been malignant, and became nervous and excitable. She would "go all to pieces." She worried and had sweats at night from which she would wake "in a nervous state." She complained of odors and feared shock when taken to the x-ray room although she had received x-ray treatment following her operation. She had various pains which were said to be due to neuritis but as late as eight months following the removal of the breast no recurrence of the growth was found by competent men. The opinion when the case was first seen in October, 1926, was that she had developed a neurosis but x-ray pictures showed clearly a metastasis to skull, ribs, os innominata, scapulae and heads of the femurs. The case is not reported in full but serves as illustration of the fact that the psychiatrist who thinks only in terms of mental mechanisms falls far short in his usefulness.

The paper thus far has referred to psychic symptoms in other types of disease rather than to conditions which more commonly would be grouped among the mental disorders.

If one wishes to refer to classified disorders, particularly some of the psychoneuroses, a paper by R. D. Gillespie is recommended.<sup>2</sup> This is but one of many admirable papers on the subject written with the general practitioner in mind and giving more details in regard to treatment than lie within the scope of this paper.

In the more severe mental disturbances it is ordinarily necessary that the patient be sent to an institution for the especial care of that sort of case. In these institutions it is all important that psychiatry be considered a branch of medicine. This is not only in order that material bases be searched for and recognized if present but because in all psychoses there may, for example, be disorders of appetite, digestion, elimination and sleep which need strict attention. One has to know the general condition if drugs, hydrotherapy or diathermy be prescribed, and generally speaking one feels the patient has a better chance of recovery if he is well nourished and in good general condition. This does not outline the treatment of the psychoses but helps to show that the medical viewpoint is essential.

#### CONCLUSIONS

1. It is well to remind ourselves that functional activity of the nervous system necessitates metabolic changes whether the stimulus which initiates the activity comes in immediate contact with the nerve endings or only through the medium of light or sound waves.

2. More knowledge of what actually constitutes the metabolism of the activity of the nervous system particularly of the associative processes is needed and this knowledge is quite as apt to come from physiologists and workers in other fields as from the psychiatrists.

3. While more information is needed of the material changes which occur in the functioning of the nervous system there is at hand clinical experience which with considerable success meets the demands for therapy presented by those suffering from disorders which involve the nervous system predominantly.

4. Adequate treatment of nervous disturbances according to information at hand, and advancement in the future in the knowledge of the physiology and treatment of the disorders in question, demand an approach predicated on principles which govern all fields of medicine.



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## DISCUSSION

Dr. William H. Holmes (Chicago): The subject of Dr. Clark's paper is "Psychiatry's Place in Medicine." It is a particularly difficult subject to present because it is not easy to assign a definite place to any service or institution or individual in this present day world. It is an ever changing world. There is nothing slack or static about it. It is a world in which age is not revered and in which ancient faiths are constantly being challenged.

Our conceptions of time and space, geography, history, religion, medicine, require constant revision.

This investigation being carried on in all fields is an indication of man's determination to understand the universe of which he forms such an important, although physically such a small part.

Moreover, it is an indication of man's determination to understand something about himself. He wants to know where he came from and how he climbed the steps to his present position of dominance in the world. But that would not satisfy him, because in addition to his desire to know from whence he came he wants to know where he is going. He wants to know something about the future and how he can mold that future.

I think that the present unrest may be regarded as a healthy sign of a desire on man's part to mold that future into a better thing for mankind than anything mankind has known in the past.

In this forward march psychiatry has a place. It can obtain great help from allied specialties, because the investigation going on necessarily requires that specialists in various fields shall each take a part.

The anthropologist is in a position to contribute much to psychiatry by reason of his knowledge of racial history and racial traits.

The geneticist is in a position to contribute much to psychiatry by reason of his special knowledge of heredity.

The sociologist is in a position to contribute much to psychiatry by reason of his knowledge of the effect of social, religious and political organizations, and the impact they have on the intellectual and emotional make-up of man.

Psychiatry is that specialty of medicine which deals with the intellectual and the emotional make-up of man, and Dr. Clark has called attention to the fact that this make-up is the resultant of a great many forces—racial origin, familial traits, perhaps the state of nutrition of the mother before the child is born, birth injuries, hereditary disease, infectious, metabolic diseases after birth, and then later on in life the result of that individual's efforts to find his place in society.

I question whether psychiatrists in general have taken full advantage of the contributions which can be made by specialists in other fields of knowledge.

For a long time psychiatry seemed quite content if they could classify a case. They devoted themselves to nosological niceties, because when they were successful in classifying the patient they were enabled to look into the future, and to predict to some extent what might be expected to occur.

I believe that they have neglected some of the factors which could be useful in the prevention of mental disease. That is not universally true. The institution with which Dr. Clark is connected has for a number of years done a good deal along the line of education. They are sending out constantly literature dealing with the prevention of psychoses and psychoneuroses. But on the whole I believe that it is a fair criticism of psychiatry that they have devoted too much attention to a mere classification. They have not been in touch with some of the other fields of medicine.

On the other hand, the general physician has shunned psychiatry and psychiatric problems. Perhaps he has done so because of the strange language in which the problems of psychiatry were expressed. But if psychiatry is to retain the place in medicine which it now has, and is to become a more important part, it can only do so with the help of the general physician. Because the general physician is the one who sees the psychoses and the psychoneuroses in their making. Whereas, as a general thing, the psychiatrist sees merely the human wreckage which is an end result.

It is the general physician who is acquainted with the family, who sees the family in which there are hereditary defects and who might by wise counsel prevent the passing on of these things to the next generation, and it is the general physician who in fully seventy-five per cent. of the patients who come to him for strict organic diseases also finds the making of psychoneuroses and psychoses.

Dr. Clark: I want to endorse everything Dr. Holmes has said, and I think the principal point here is that psychiatry is immensely bigger than psychiatrists. I feel that the association of psychiatrists with men in other branches will increase as time goes on.

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## THE AMERICAN MEDICAL ASSOCIATION—ITS DUTY TO ITS MEMBERS AND TO THE NATION'S VETERANS OF THE WORLD WAR

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It should be said, by way of introduction, that the American Medical Association is not opposed to any program adopted by our Federal Government for the care of ex-service men, only except when, as or if, that policy tends to affect the present status of medical practice and the future

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development of the science and the art of medicine. It is of paramount importance that we keep this limitation well in mind in the discussion of this problem. This restriction removes all arguments due to political preference, or to those demands of loyalty to a particular administration, in the interpretation of our attitude toward that policy. With these boundaries before us, we, then, can review the project wholly from the point of view of a truly public question.

In returning to a discussion of the subject, the duty of the American Medical Association to its members falls naturally and inevitably into two categories: First, scientific; secondly, economic.

During the first half of its eighty-odd years, the American Medical Association devoted itself primarily to the promotion of matters of scientific interest. So completely did this concept of organized medicine hold the professional mind that it was, almost without exception, considered highly unprofessional, as well as entirely undignified, for a doctor, or a medical organization, to be concerned with politics, governmental policies and edicts, or economical influences. This is mentioned for direct contrast with this meeting.

What might be considered the first liberalization of policy by the American Medical Association came when it began to look upon itself as having a certain stewardship and a positive guardianship over the future development and growth of medical practice. The medical schools of the country were brought under the influence of the association in the matter of a reasonable standardization as to equipment and teaching. The States adopted medical laws designed to elevate the profession by requiring improvement in educational qualifications and enforcing higher standards by means of examinations and licensing.

Next we note the evolution of industrial medicine, coincident with the enactment of laws governing the care and treatment of the injured in industry, which has created a new field for medical practice. It has helped some doctors and hurt the practice of others. Industrial laws function largely and almost entirely through the willingness of doctors to accept the fees offered by insurance companies. These fees, which were and are abjectly inadequate in many instances, have been improved quite measurably through the diligent efforts of organized medicine. The

elements of victimizing distrust and lamenting suspicion, which often existed between insurance adjusters and many doctors, are disappearing on that account. While there may be some question as to the guiding and dominating influences of organized medicine in the development and in the functioning of these laws, nevertheless, the experience has exercised a tremendously important effect in educating doctors. We now are taking a revived and a more intense interest in any and all laws, or policies, which conceivably might influence our living. We may be well trained and well prepared to practice our profession, but if we find ourselves in an increasingly difficult environment, then it becomes our duty to improve it if we can. We have achieved a high standard of scientific attainment; we now must strive our utmost to make that practice more agreeable, more satisfactory, more rational.

With the advent of the depression, the medical profession has had indelibly etched upon its composite mind what adverse economic conditions can do to a doctor and his family. The scars of battle still are visible. As a result, a Bureau of Medical Economics was established by the American Medical Association with a very competent man in charge and space in our official JOURNAL was given over to it. Here, from time to time, interesting facts have been and are being reported about various practices, expedients, and shortcuts to economic relief, which are being experimented with in many places.

Preventive and curative medicine are so intimately interwoven into the woof and fibre of our social fabric that today they affect each and every citizen in innumerable ways and instances throughout his daily life. We doctors dispense one of the primary necessities of real and full living. Everything which impinges or bears upon our profession detrimentally may be a very real loss, indeed a vital loss, to society in general as well as to the State. Conversely, the reverse of this is also true, because anything that disturbs society, especially in its economic well-being, cannot help but affect adversely the welfare of those who practice medicine. If we doctors can become sufficiently aware of this intimate relationship between our usefulness to society and society's usefulness to us, we will instinctively be concerned, individually as well as collectively, with every social influence or gov-



ernmental policy that may alter the practice of medicine today, or its future development as a science and art tomorrow. It should be quite clear that the more difficult the practice is made, or the fewer the satisfactions which may be obtained by the doctor in the way of pay or professional triumphs, just so much the less desirable the profession itself will become. One result of such adverse influences without doubt will be made apparent in a changed type of medical personnel. The higher-type-mind, now looking toward medicine as a future career, will look elsewhere. Regimentation of the profession through some plan whereby the doctor is given employment by the State, by commercial insurance companies, by fraternal organizations, or by any other scheme, may be desirable to certain doctors; however, it would not satisfy a very large number.

The true ideal of medical practice is the maintenance of the traditional patient-physician relationship in which the patient has free choice of doctor. It is in this interconnection of interests that the greatest degree of confidence is found through which the most benefit for the patient is obtained. It is also the most satisfactory to the physician, since it is quite difficult to administer treatment in any instance where that mutual faith and correlation have been lost or destroyed.

During the past twenty years there have been observed certain influences which threaten to destroy this traditional relationship. Reference is made—1. to contract practice of various sorts, where fraternal organizations employ a physician; 2. to the establishment of free clinics or foundations endowed by men of wealth, where the individual is taught to accept the physician assigned to him; 3. to the various industrial laws of the States, where the individual is taken away from his family physician and, under more or less compulsion, is treated by physicians selected by the insurance carrier or employer; 4. to the tremendous increase in specialization, which has broken down the family-doctor-patient relationship and has divided that loyalty among a number of physicians; 5. to the drafting of four million citizens where they were compelled to receive treatment from doctors employed by the government; then, finally, 6, to the post-war development by the Veterans Bureau of numerous hos-

pitals where free treatment is given by doctors entirely unknown to the patient—all of these have been destructive of the ideal, patient-physician relation. The township-poor practice by contract doctors has been just one more added factor in the breaking down of this ideal. The conclusion of any intelligent layman, who has experienced this, would be interesting to us. We would like to believe that he still prefers his regular family physician. These difficulties, besetting the practice of medicine, are mentioned in order that we may discuss with reason and understanding our duty to the nation's veterans.

The obligation of the American Medical Association to the nation's veterans is identical with that of any other patriotic organization. We stand irrevocably upon the premise that every veteran, who owes his disability to his army experience, should and must receive the very best that the science of medicine can give. We insist that the highest type attention be rendered him without regard to cost and that the service be continued until the patient is cured, or until fully adequate provision has been made to take care of him for the remainder of his life. All doctors, everywhere, are in sympathy with the demands of the Legion, that the widow and the orphan of him, who gave his life that this nation should survive, must receive generous provision at the hands of a grateful people. If Congress wishes to go beyond this, then there may be legitimate differences of opinion even among doctors, as well as among other citizens, concerning the desirability of such actions.

The Legion, in their convention at Chicago last October, adopted their "Four-Point Program." As a medical profession, we are interested only in point number two. This was a demand that government facilities at the command of the Veterans Bureau be used for the relief of ex-service men for medical and surgical conditions not arising from their army service. They added the proviso that such service should be given only to those who were in economic distress and unable to pay for such service at home. It was intended by those who sponsored this program that only those facilities were to be used which were not needed to care for service-connected cases. We doctors felt there was no real need for alarm on our part if no additional hospitals were built to care for this class of patients.

We remembered the development of the old law which was ended by the Economy Act of last year. Under the old law, tremendous abuses developed wherein individuals, well able to pay for medical and hospital services, left their own communities and sought Veterans Bureau facilities, that they might be taken care of without cost to themselves. Remembering all these excesses, we were somewhat skeptical about the meaning and the possible development of this one point in the Legion program. We felt no concern if the matter actually was limited to those who were in need now, at the present moment, because we realized that the number would decrease gradually as better times returned. If, however, this is to be the thin, entering wedge for the ultimate return of all the conditions resulting from the old law, then we have suffered, indeed, a major defeat at the hands of those in charge of Legion affairs—those who know how we felt about it.

An analysis of the problems involving the sick veteran is illuminating to anyone approaching the study with an open mind. From the strictly medical point of view, there are certain general classifications which roughly describe or group the varying pathologies involved. We already have agreed that the service-connected case merits everything we can give. It is believed that we should further concede that this generous spirit may, with great merit, be accorded those presumptive cases which fall in the twilight zone of service-connection. It seems reasonable, even, that we can grant, still further, that the government has a responsibility to fulfill in furnishing medical care and hospitalization to certain other groups admittedly not service-connected. When we take into consideration the problems involved in the care and future well being of nervous and mental patients, to say naught of tuberculosis and other chronic, crippling, or disabling diseases, we can see that, sooner or later, inevitably such cases become a charge on some community, or on some State. If such an individual has worn the country's uniform in time of emergency, the Federal Government, as a matter of simple justice, should and must assume responsibility in full, for that veteran, the same as any State would, and must, with any other citizen.

If we relegate to the government the care of the various groups heretofore named, then we narrow down our discussion to but a single classi-

fication, which might be described as acute medical and acute surgical conditions not resulting from army service. It was this one, most particular class, which, under the old order, from 1924 on, grew to such enormous proportions that a demand was created for, and the building of, numerous hospitals by our Federal Government. A governmental policy of such magnitude, which undertakes to give this type of benefit to 4,500,000 citizens, unquestionably affects every individual doctor and every single hospital throughout the entire nation. We should pause to think, scrutinizing every influence most carefully. When the Federal Government gallantly plunged beyond the traditional provisions of caring for those whose disability was service-connected and proceeded to administer almost unlimited benefits to those whose disabilities arose in civil life, then, indeed, we doctors began to question its destructive effect upon our practices, right now, as well as to speculate upon the dire implications of such a policy in the very near future. These are the factors that cause us unrest, as doctors, in a way that is not particularly disturbing at present to any other class of citizens. We, naturally, oppose such an extension of governmental benefits because it is a short step from oppression to annihilation, and that is what confronts us as a profession, to say nothing of the hardships visited upon community hospitals everywhere throughout the land. We could cite, also, the effect which such a policy, carried but a little further, would have upon future generations of doctors, thus affecting adversely the general welfare. To educate four million citizens, men just now in the most active years of their lives, to expect to get, without cost to themselves, a most valuable service at the hands of the government, easily might prepare the way for this influential section of the population to demand and obtain a greater extension of socialistic schemes to furnish medical care and hospitalization to other classes.

As mentioned earlier in this discussion, the whole trend in the past generation has been to educate more and more people farther and farther away from the ideal physician-patient relationship. Any policy of free medical and surgical care, extended to any section of the population, for any reason whatsoever, unavoidably must have this result. It is not believed that this end was anticipated, or intended, or sought



by those who wished thus to extend the bounty of our only too-generous government.

The American Medical Association Committee on Legislative Affairs, at frequent intervals, has contacted the national officers of the Legion, the Veterans Bureau, and those members of Congress having something to do with veterans' legislation. Our attitude has been that, if possible, we would prefer that the government would stay out of all schemes whereby citizens were given medical or surgical care for conditions not resulting from service to the government. We felt that even the slightest deviation from this intrinsically sound and traditionally correct attitude merely invited future trouble through its possible liberalization at the hands of a big-hearted Congress, if not now, then in succeeding sessions. We have been defeated in this particular stand, and the Veterans Bureau facilities have been ordered to receive ex-service men suffering from medical and surgical conditions not related to their army service, those whose economic status renders their care at home more or less difficult. We have the duty now of trying, if possible, to keep this benefit limited strictly to those who are actually in need. The definition of this need should be a very realistic and most positive one. In our private practices we would understand this definition to mean anyone who was on the township-poor list for any of the primary and essential necessities of living.

It is the united plea of the medical profession that the Federal Government will not build additional hospitals for that class of cases not having service-connection. It is our further hope that the Veterans Bureau facilities now in existence will be converted as rapidly as possible into domiciliary homes and hospitals for those deserving veterans, who, through life's misfortunes, have or may become incapacitated as home-makers and who then must look to the government for help. The recent law, restoring hospitalization to indigent individuals without regard to the cause of their disability, does not contemplate new hospital construction, nor is it intended to extend the application of the law to other groups. This is said, having in mind a conversation held with one who was largely responsible for this law. It can be seen, however, that if there should develop an unprecedented load of depression victims, all clamoring for free care at the expense of the

government in Veterans Bureau hospitals, then it will be very difficult indeed for the national officers of the Legion to refuse to champion the demand for more hospital beds, or to convince Congress that new hospitals should not be built. If the load of depression cases never should reach the saturation point of the present bed-capacity of government hospitals, then, of course, the subject never will come up for agitation. If the government should continue this program, or liberalize it once again, so as to include those classes who are not so poor but who still feel that a doctor's bill is always beyond their means, it would be well to know if we cannot interest those in the Legion, who have a determining voice in Legion policies, in another project. This plan will preserve in a large measure the ideals of medical practice by permitting the ex-service man to be treated at or near his home. It will redound to the well-being of the individual doctor and to the community hospital. We are aware of certain objections to this idea. It has been maintained in the past, especially by the Veterans Bureau, that the administrative difficulties involved in the treatment of veterans by local physicians would be so great as to be practically insurmountable. However, opinion still prevails that some workable plan could be found to provide for this very thing. Congress may extend this benefit to all ex-service men. In this event, instead of the government building more hospitals and creating a greater medical machine for this purpose, we doctors should be prepared to present a plan whereby the government could have this work done at home by the ex-service man's physician and in his home-community hospital. This could be arranged so that the cost to the government would not be essentially greater than what it is now. From certain information obtained by this Legislative Affairs Committee, we are convinced that it costs the government, at present, the equivalent of good surgical and medical fees, to treat cases in Veterans Bureau hospitals.

In the opening remarks, the statement was made that the American Medical Association is not opposed to any program adopted by the Federal Government for the care of ex-service men, except as that policy, or policies, affects the practice of medicine and its future. Your attention,

briefly, has been called to some of these effects. The measures suggested should be adopted.

We have, this year, as National Commander of the Legion, a man who understands the problems of professional practice, and he has been found sympathetic to our special problems.

The past three years have witnessed a broadening of mutual sympathy and understanding between the leaders of the American Legion and those of us of the American Medical Association who have had the pleasure of conferring with them from time to time. Surely there is ample opportunity for cooperation between these two great organizations.

There should be no objection or opposition with our helping the Legion to obtain its legitimate objectives. At the same time, the members of the Legion have much to gain in the preservation and safeguarding of the traditional values of medical practice. No more, no less, is essential for the public weal.

## WHAT IS RIGHT WITH THE MEDICAL PROFESSION?

JEAN McARTHUR  
CHICAGO

There seems to be more truth than poetry to the statement of a doctor who said, "The physician of today is in much the same position as modern religion—more often ridiculed than praised." In looking through a number of popular magazines, considered "smart" in some circles, in reading reports from lay investigators, one is lead to believe that criticism of the medical profession is one of our favorite indoor sports. Because medical policies and medical questions enter so largely into the business of living, every Tom, Dick and Harry feels privileged to advance his individual theories as to how doctors should conduct themselves and their practice.

It seemed to me that it might be interesting at this time to consider some of the criticisms and theories advanced about the medical profession and bring out the facts, if there were such, indicating that certain fundamental principles of the practice of medicine are right and prove if possible that medicine always has been, is and probably always will be a highly respected pro-

fession. If this can be done, then why can not doctors stand up for their rights? If doctors believe in their profession why should organized medicine hesitate to let the public know that it believes in itself. The man who believes in himself and his work experiences little difficulty in convincing others of his integrity.

Consider the education of a doctor. Under the law safeguarding the public, the doctor is required to spend more time and money in his preparation to serve humanity than any other professional group. This seems proper. Who of the public wants to entrust his life to someone who has had no training and to whom the diagnosis of his ills is but guess work? But what happens after a doctor has finished his training? He can not go out and sell his services as a man in business. If he goes into private practice he may wait days or months for patients. He may go into research, but no royalties are paid for his discoveries. When he finally does establish a practice and becomes known as a "good doctor," do you think he gets rich quick? You know well the answer. Is he paid in full by all of his patients? No indeed—and probably those who pay the least or not at all, are the ones who are the quickest to criticize him and others of the profession.

As time goes on, new discoveries and theories are constantly developed. In order to treat his patients proficiently and to give them the benefits of these latest methods of treatment, the doctor must be prepared through continuous study and post-graduate work. How many lawyers, ministers or other professional men are required to keep on with such intensive study? Upon the doctor's knowledge and skill, life may hang in the balance. If he is to be a *good* doctor, he must be on his toes. In addition to his study, the doctor is expected to give his time to work in dispensaries and free clinics where some patients may be accepted who should be going to his private office. His contribution to the welfare of the community and his offering to charity cannot be equaled by any other group or profession. The doctor is at the beck and call of his patients; even his vacations are grudgingly accepted by them.

The doctor knows all of these facts. The young student has already learned that the profession of medicine offers a few magnificent rewards but



promises strenuous days and wearisome nights. It imposes great responsibilities, it grants exposure to many menaces and because of the daily drive, the responsibility and the physical hazards, a life expectancy somewhat less than that of mankind in general. If the doctor believes sincerely enough in his profession to accept these conditions, then why should he not defend his rights before the public? Why should he let the laity belittle him in the press, from the public platform, over the radio?

The charge is being made by some that medicine is becoming commercialized. There are those who state that the doctor of today is interested only in his scientific goal, or in the amount of his fees, or the number of patients he can see in a given length of time. Well, is any large group of men and women ever 100% perfect? Is it fair to condemn a thousand men for the one unscrupulous or selfish man? As long as states license men to practice the healing art without demanding the same qualifications, education and standards, the honest man will be blamed for the sins of the dishonest.

It seems extremely difficult to convince the public that there are different types of doctors. A sick man will go to a doctor upon the recommendation of a friend. He may be an advocate, for example, of the policy, "throw away your glasses and exercise your eyes." The patient may pay in advance for his instruction; he probably gets no better and when his sight has definitely failed and his purse has been depleted, he finds his way to the office of a well qualified doctor. Too late! Some folks say, "Why don't you doctors who deal in proven facts of science expose these imposters?"

The answer is that people will not allow the medical profession to show them. They say that medicine is selfish and prejudiced. If the doctor does not tell he is charged with remaining aloof from public affairs and his share of responsibility for the civic welfare of his fellow men. If he does tell the truth he is accused by others for interfering with the much advertised "personal liberties" of the other fellow.

The practicing physician has a right and should defend his profession and his interests. He is the greatest safeguard the public has today against epidemics and dangerous medical conditions. The public would certainly protest if the medical profession slumped in its responsibilities,

so why not let them know the everyday sort of thing which is being carried on for their benefit by the doctors. The greatest safeguard to the health of the public is a well-equipped, well-organized profession of medicine. With such an organization and every member really cooperating and participating, much greater headway can be made in bringing information to the public.

There are some, within the profession as well as without, who scoff at the code of ethics. They fail to realize that without such a code, medicine might be subject to the same up-to-date liberalism that gives jobs to vote-getters, judgeships in politics, and that sets murderers and kidnapers free. It is generally accepted that the medical profession has ranked and still ranks as one of the cleanest and best regulated that we have. Do you remember of hearing of any major scandal being placed at the doorstep of medicine? I know of none. What other profession can compete with such a record. Not long ago the dean of one of our law schools stated that medicine was farther ahead in the education and disciplining of its members than the legal profession.

If these things be true, why does medicine hesitate to put on a bold and united front before the public. why does it allow itself to be intimidated by lay investigators who are paid for finding fault with all that pertains to medicine? No other group contributes more largely or unselfishly to society than medicine. then why should it not be the dictator of policies? This is no time for hesitation or fear. Other groups assert themselves and the public likes this boldness.

Medicine must assume leadership and it is its right. It should prohibit lay groups from taking over responsibilities which belong to the doctor. It should not allow itself to be controlled by those unfamiliar with its precepts.

How can this be done? I think largely through a definite, dignified yet sure process of education of the public. Progress is being made, but results can be hastened by the support of every individual doctor. Cooperation of individuals and county medical societies is paramount.

How many people know that as a result of the rapid advance in medical knowledge the average span of life expectancy has increased from 35 to 57 years? The public accepts all this without thought or explanation, little realizing the study, the experimenting, the lives given to the search

for knowledge that brings them health. Diphtheria is rapidly falling under the control of medical science; diabetes is not the dreaded disease it used to be; typhoid fever is almost a disease of the past and yet in the Spanish-American War it caused more deaths than those resulting from gunshot. These changes all are due to the fact that the modern physician knows how these diseases are produced, how to prevent their development, and how to check their spread when they do develop.

At the present time the public has become aroused to the actual conditions which result from war as shown in the pictures appearing in our newspapers. Do they realize the tremendous service given by the medical profession in caring for the wounded and suffering and restoring to active useful lives those who might otherwise have remained useless to themselves and society? It was because of this scientific knowledge and skill that hundreds of thousands were saved in the recent war.

Does the public understand that every medical discovery makes for fewer patients? Why do some people feel so very sentimental when it comes to vivisection, yet will wear leather shoes, furs from animals that have been tortured by trapping, and will eat meat whenever they can afford to? Charles Evans Hughes in addressing the American Bar Association at Detroit, September 3, 1925 states, "Yet it is with respect to the freedom of learning that we find a disposition to impose restrictions which cannot fail to give us grave concern. It is to be observed in the field of medical research. What department of intellectual activity is more important to a free people? Of what avail are the privileges of life, if we do not live? Of what gain is liberty, if we succumb to the ravages of communicable diseases? Of what value is government, if it puts research under ban and permits the spread of plagues which knowledge may prevent? In what area of endeavor has there been such fruitage as in preventive medicine, saving countless lives and putting an end to indescribable agonies of human beings? Yet we observe persistent attempts in our legislatures not only to impair the immunities already gained, but to hamper scientific investigations through which alone the scourges of disease now beyond remedy may come under control."

Why should the minority sentimentalists be

permitted to control human life to the extent of keeping health from thousands of individuals who are dependent upon discoveries which may be made in the laboratories. The doctor is restricted on all sides, the restrictions imposed by a public which cannot distinguish right from wrong.

Who gives back to his community in such large measure as the doctor? In a report from the Committee on Economics of the Westchester County, New York, Medical Society it indicates that "during a given twelve months the attending physicians and surgeons of the fifteen general hospitals in that county contributed to the poor in these institutions medical and surgical attendance conservatively estimated as worth \$1,857,-873. This figure, impressive as it is, the Committee says, does not begin to reflect the real value of the contribution in medical service made by the profession throughout the county in any year to the deserving poor. It reflects only the work done by the attending physicians in the wards and dispensaries. To it should be added the inestimable amount of service every physician gives to deserving people in his private practice. It is interesting to compare the value of our contribution in hospital service to that of the hospitals themselves. The hospitals have provided free care to a total of \$1,801,503.69, the bulk of which presumably has been repaid them from public and private charity funds. The cost of medical charity to the hospitals is thus seen to be less than that of the medical profession. And no part of our contribution is ever returned to us."

It would seem only right that medicine, which after all is the chief contributor to these health institutions, should have some say as to their policies. The doctors are blamed entirely by some people for the high cost of medical care.

It might be well to consider what contribution to society and human welfare has been made by some institutions severely criticizing medicine. Can the history of the health of their employees, the wage scale, their working conditions be held up before the public view as perfect? Have the vast fortunes and endowments built up by such institutions been possible because of the oppression and the low wages of thousands of people employed therein? Have these same employees been able to afford medical care in the self respecting manner of their employers? If the pub-



lic is going to blame medicine for all the troubles of people today, then the medical profession might well turn the search light upon this group of our public and give a report of their findings. I predict it would be anything but flattering.

Sometimes we hear the unjust criticism that medicine holds back important discoveries, but these are only withheld until they are really successful. Every effort is made to spare a shattered hope of the incurable. Newspapers flaunt spectacular notices before their readers; medicine objects from a just motive. People flock to distant cities for cancer cures, not because an honorable doctor invites them but because an unhonorable newspaper reporter writes an appealing and spectacular front page story.

A good family physician called upon to guide the household in health as in sickness is the best investment the private individual can make for health. If all families availed themselves of the knowledge and skill of their physicians to secure health as they now do to get relief from sickness, this would be a much better world. Preventive medicine has a definite place in our lives. Periodic health examinations of the healthy can be beneficial. It is right that the medical profession should emphasize the importance of these examinations. The Illinois State Medical Society has printed blanks for recording histories in these examinations and they are available to members.

The doctor must not be lax and fall down in his part. His examination must be good, his diagnosis must be accurate, and his treatment sure. The patient will then know he has a *good* doctor. Medicine must make the study of the maternal mortality, the high infant death rate during the first weeks of life, the high incidence of smallpox, the deaths from diphtheria. The doctors should leave no stone unturned to put themselves in control of these many activities which are strictly their field of work. They must feel the necessity of reporting births. This would seem altogether possible with the type of organization developed through county, state and national medical societies. Working as individuals much can be done, more can be accomplished through strong medical organizations.

Medicine and its teachers should have no fear. The power which belongs to it should be grasped and guided into proper channels. The public is beginning to understand that physicians are men and women as well and that they can be interested

in any worth-while, well conceived, properly executed health project in precisely the same manner as can any other group of intelligent public spirited citizens.

The opportunities open to medicine for leadership are boundless and when the doctor steps forward to take control through his county medical society, I thoroughly believe that we will hear less unjust criticism but more praise, and that we will develop an understanding of the principles that make medicine one of our greatest professions.

In closing I would like to give a toast to the doctor which I recently came across, "In the name of thousands of unbroken homes in which midnight hand-to-hand fights with death have been fought and won; in the name of thousands of lives rescued from abnormality and made useful; in the name of unshed tears and forestalled pain and baffled death—I doff my hat today to the Doctor. May he never have use for his own medicine. May each movement of pain he has saved others shine in the crown of his life like a bright star. May the children to whom he has saved parents and the parents to whom he has saved children take time to acknowledge the doctor's worth. May his patients pay him his bill. And in the inevitable hour may a certain grim adversary recognize a noble foe and deal gently with the doctor."

#### DISCUSSION

Dr. Donald W. Killinger, Joliet: This is certainly a very interesting and very instructive paper, if I may use the word, from a layman. I believe Miss McArthur, who has dealt with doctors for some time, senses the situation the doctor is faced with today. I do not believe that any of us have lost sight of the fact that medicine is facing a crisis. I know the situation in my own community, and I believe it is the same in yours. The average physician today is facing a crisis, and there must be some way of working out a solution to distressing problems. There are many local obstacles that are difficult to handle. I have been secretary of a county society for four years, and we of our local society have encountered many of these problems.

There are many men in every community who are hard to handle and who cannot be corraled. If you attempt to impose on them the ideas of the rest of the men in the interests of the group as a whole, they will balk. I believe the loss of a member is a terrific blow, a much greater loss than the gain in acquiring a new member. I think these disgruntled members should be encouraged to stay with the society and help fight its battles, rather than leave and become an enemy to the common cause. Many men want to come to meetings

for their own welfare, to hear an interesting paper, to learn something new about a subject in which they are interested, but they do not give genuine support to their society. Many men are cutting fees, and tell us it is none of our business; if not members they can do this and we are at a loss to cope with such a situation. Someone mentioned there were 4,000 non-members in the state. I think that is a most unfortunate situation and it surely hinders the profession in its struggle to preserve its high standards.

What is the solution of these problems? I believe medicine must be better organized. I believe the movement must come from above, not from below. The county society is a fine organization to carry out orders and co-operate with the parent societies, but I do not believe that the Illinois State Society or the American Medical Association should look to the county society to solve these problems. They are too big. It must come from leadership higher up. The solution of the problem lies in the taking over of a new responsibility so far as the Illinois State Medical Society and American Medical Association are concerned.

Dr. Bennett feels that a day a week might be well devoted to our economic problems, and in doing that we must face some unpleasant facts, we must turn over unholy ground. It is nice to hear our scientific papers, it is educational to read the discussions and the papers, but there are many other problems for organized medicine to consider—serious problems. I believe organized medicine should make a careful survey of the conditions which confront us; representatives should be sent to talk to various individual physicians about the state and about the country, to get their problems and their viewpoints and their theories on the solution of these problems. Whatever of value is obtained should be put into a pool, and from that might be worked out a solution. Without being radical I again say that the solution must come from the higher bodies, the State Societies and the American Medical Association. Too much has been left for the small county units to start—particularly when they are so engrossed in their own local problems.

Dr. Edward H. Ochsner, Chicago: In spite of the lateness of the hour these contributions should not go without being discussed.

One of the most discouraging things in history is the fact that each succeeding generation seems to be incapable of learning anything from past history. It has been said that the only thing that history teaches is that it teaches nothing. If we could look back and use our historical knowledge, a great many of the ills that recur in each successive generation could be avoided.

I believe that medicine today stands the highest in the estimation of the American people of any group in society. I am not pessimistic at all about the opinion of the public. If you look through the magazines and the daily papers, and look at the reception that was given the majority report of the Committee on the Costs of Medical Care and then look at the reception given the minority report of the same Committee, you will find my contention substantiated. Almost every line that

was written in American journals and newspapers was commendatory, not of the main report but of the minority report. I repeat that there is no group in American society today standing so high and having such a splendid record for achievement as the medical profession. Great human crisis such as that we are passing through today are apt to bring out a host of nostrum cures. The medical profession should go right along and mind its own business and not attempt any of these nostrums. I think the people are getting "fed up" on flamboyant advertising. One needs but to listen to the radio for one single evening in order to be convinced of this. One great fault of the American people is fadism, but when the fad goes too far it defeats itself, just as the streptococcus or staphylococcus dies off in its own excrement. The thing for the American physician to do is not to get panicky, to sit tight and keep on in the dignified way that has been theirs throughout history, and they will win out. I believe the committee of which Miss McArthur is executive secretary is doing splendid work.

Just one more thing. I think people are becoming thoroughly nauseated with bureaucracy very rapidly. They will be so nauseated shortly that the medical profession will be saved. A few years ago big business wanted to control the medical profession, but the thinking people of this country are gradually getting "fed up" with bureaucracy and lay controlled medicine and the reaction will soon come and the practice of medicine will be saved. The American people have come to the edge of the abyss a number of times in their history and each time have stopped short of going over, and I believe their good sense will save them again this time.

## INCIPIENT CATARACT

C. W. GEIGER, M. D., and J. H. ROTH, M. D.

KANKAKEE, ILLINOIS

Certain types of lens opacities have been designated as senile cataracts. If no predominating pathology, such as diabetes, cardio-renal disease or occupational causes, can be found the condition is cheerfully relegated to the classification of senile cataracts. These opacities may be found as early as the third decade of life and progress rapidly to necessary surgery. Again patients in the late seventies and eighties may be seen with very little or no morbid changes in the lenses. To attribute such cataracts to senility seems rather unconventional.

Presbyopia, a precursor of senility, arrives at a very definite period of life. The menopause varies but a few years with individuals and races.

Read before Section on Eye, Ear, Nose & Throat at Annual Meeting of Illinois State Medical Society, at Springfield, May 15, 1934.



These changes are definitely ascribed to the accumulation of years. We also have atrophic changes, which we find convenient to refer to advancing age—alterations in the hair and skin or resorption of the alveolar processes. However these changes vary greatly with age and for no really acceptable reason.

Recently very many changes, which we encounter in that period of life, termed past middle age, have been committed to that vague limbo known as secondary diseases. Many conditions which were once dignified as separate entities, are now regarded as symptoms of some more deeply underlying pathology. We no longer treat vascular diseases of the eye nor neurological impairment of vision as difficulties per se but rather as warnings for thorough and searching investigation by the internist.

To consider cataracts as senile, whose etiology we cannot easily allot, which occur after the third decade of life, should condemn all of us to impairment of vision from cataracts if we live long enough. As a medical profession, we are priding ourselves on extending the expectancy of life and we believe that we are entitled to this credit. Consequently, we are seeing patients of greater age, whose physical condition is everything that could be expected. But regardless of this fact we are not meeting with any very great increase in the so-called senile cataracts. Perhaps, after all, cataracts are not a penalty for growing old, but merely symptoms of some remote and obscure trouble, difficult of diagnosis and management.

Ophthalmic literature is replete with the various surgical procedures in the management of cataracts. Technique has been amazingly refined, but nevertheless we must accept a certain percentage of disappointing results. Whether an absolutely perfect surgical program can be perfected is doubtful. However, despite these handicaps, the surgical aspect of cataracts remain the more spectacular and alluring. Perhaps this may account for the fact that we do not devote more time to the early regulation of the so-called senile cataract.

Many abnormal changes in the eye, such as uveal diseases, retinitis and keratitis have come to be regarded as part of the picture of remote disorder and have been more or less successfully treated accordingly. We may encounter these

conditions at all periods of life, but more frequently as the age of the patient advances. Yet we do not regard these maladies as senile nor is our management of them as indifferent as in the case of senile cataract.

In a downstate practice, principally rural, approximately 1,300 cataract patients have been observed over a period of more than twenty-eight years. Traumatic and congenital cataracts are not included in this number. Also patients under investigation less than one year are not considered. Incipient cataracts in our survey were first diagnosed as early as the sixth year of life and as late as the ninety-ninth. Mention of this fact is made, because both of these patients were under observation before the diagnosis of incipient cataract—was made. The six-year patient has aniridia in both eyes. Despite the protection of colored lenses and frequent refractions the opacities progressed until now in the early twenties he is threatened with surgery. The older patient had been seen several times between the ages of eighty and ninety-nine and only on the last examination were the slightest opacities discovered, which did not materially impair the vision. A patient approaching the century mark must of necessity have escaped many focal and general difficulties to attain such an age, which may also account for his very good vision throughout these years.

One and four-tenths per cent. of our observations were made before the fortieth year. Two patients passed through successful cataract surgery before the completion of the fourth decade of life. One of these patients was rejected from the universal military service in Germany before the World War and was told then that he had cataracts. At that time he must have been not more than twenty-five years of age. His history was devoid of any accountable reason for such early cataracts. Nor did the internist who examined him at our request find any significant pathology. His surgical results were gratifying. The other youthful patient was a victim of severe infantile paralysis in childhood, suffered a high thigh amputation before adult age and has been a mental victim since she has been twenty-five years old. In her case there was no demonstrable cause to explain her lens changes. The surgical management here resulted in 20/20 vision.

Five per cent. of the lenticular opacities were

discovered in the fifth decade of life. Between the ages of 50-60, 15 per cent. appeared on our record. In that period of life when presbyopia and the menopause make their appearance and become practically completed only 20 per cent. of the cataracts were discovered. The fact that these two changes become established places the individual in that category of past middle age or beginning senility. If cataracts are really a senile process then we should have the appearance of more incipient cataracts in this period.

The next two decades give almost two-thirds of our lens changes; 34 per cent. between the ages of 60-70 and 31 per cent. from 70-80. However, during these years we also found our greatest amount of general and focal pathology. It is just as reasonable to ascribe these lens changes to remote disease as to senility. As long as this is a mooted question we cannot be unreasonable to insist upon strict attention to the general well being of the individual. Twenty-five per cent. of the diagnosis in these two decades were made routinely, as the vision was but slightly impaired; 7.8 per cent. of the cataracts were discovered between the ages 80-90 and after 90 only 0.4 per cent. Naturally we see fewer patients after the eightieth year, unless they have complaints that brings them to us. Refractive changes at this age are nil unless we have complications and see these patients less often than between the ages 60-80.

An interesting feature of this survey in the high percentage of intraocular complications, coincidental with the discovery, and appearing during the observation of the cataracts. Forty-six per cent. of the 1,300 cataracts had other intraocular changes. Of these 19 per cent. were vitreous opacities, 10 per cent. intraocular hypertension, 7 per cent. choroidal degenerations, and 10 per cent. other intraocular difficulties.

Empirically assuming that the incipient cataracts in these cases were a part of the picture along with the complications, as close cooperation as possible was maintained with the internist and frequent routine investigation insisted upon. This procedure soon became the order with all beginning cataracts. Such a program may be more or less monotonous and consume a considerable amount of valuable time, yet we believe it has its compensations. After not less than one year observation, in two instances more than

twenty-seven and a general average of 10.6 years, 63 per cent. of the patients retained practically the same vision that they had when the diagnosis was made; 25 per cent. retained vision of 20/20 or better and 38 per cent. had vision of 20/40 or better. In other words, 63 per cent. of these patients were able to enjoy useful reading vision over a period of an average of almost eleven years and many as long as they lived.

Let us assume that incipient cataracts are incidental with age, a premise which today we have a right to question, we should be more than ever on the alert for complications. Such changes might rapidly impair vision, which could be erroneously attributed by the patient to the progress of the lens pathology. If, as we do find, that a great percentage of incipient cataracts have other intraocular pathology at diagnosis it is not unreasonable to presume that complicating pathology can make its appearance in the uncomplicated cases at any time. If we are to regard the beginning cataract indifferently we are more or less inviting our patients to do the same thing and he may disregard impairment of vision, whether it be due to the progression of the cataract or some other invading condition.

In our series 10 per cent. had at diagnosis or developed subsequently intraocular hypertension. As we all know intraocular hypertension can wreck vision almost as rapidly and more certainly than progressive cataracts, we should have these patients under control at all times. Many of these patients may require surgical management of the hypertension long before there is necessity for a cataract operation. However, this should not cause us any anxiety in regard to a later lens extraction. In our group we have three patients under observation successfully operated on for the hypertension, but whose present loss of vision we have reasonable evidence to believe, is due to the lens opacities. These patients have good filtrating blebs and their tension is always within normal limits. We are confident that this hypertension would not have been detected as soon as it was except through routine examinations. One of these patients will undergo a lens extraction within a few weeks and we are moderately sure that the post operative results will be satisfactory. Whether we can pick up other diseases in the depths of the fundus depends in a great measure on the progress of the



cataract. However, we have a sensible premise from which to assume that if we have a patient under adequate control that such complications are not so likely to develop.

Among the recent refinements in the study of the eye, is the slit lamp. With this instrument we have a valuable aid in the investigation of the pathology and a fairly accurate method of determining prognosis. There is a certain percentage of our patients who have not only a community but a national responsibility. We as oculists and consultants should have the ability of outlining the immediate future visual destiny of such patients. In the case of the beginning cataract we can reasonably do this by means of the slit lamp.

Whether local measures or general supervision has very much to do with the progress or retardation of cataracts we are not willing to debate. However, we believe that such a program is of value. Confirmation of diagnosis by early consultation reassures our patient and prevents him from seeking relief from unethical agencies. Local treatment at home may not accomplish very much as far as the progress of the cataract is concerned, but it does satisfy the patient in a way and will help bring him back to us for frequent examinations. This enables us to watch for complications and gives us a better chance to get acquainted with our patient, which has psychological merit. A patient, absolutely confident and tranquil, becomes a large factor in our surgical success.

To hide our diagnosis from our patients, because we are afraid of causing undue alarm, is really defeating our ultimate ends. In the financial world the bankers have very little sentiment when he outlines a program for a client in difficulty. Then why should the oculist hesitate to prescribe a health regime for the cataract patient? The oculist is in a position to discover these early signs of health bankruptcy and we should not allow the patient to go on and become handicapped because we hate to cause him apprehension. Cataracts are pathology, whether primary or secondary, and cry for medical attention. They may be primary or secondary but we as oculists should not disregard them as warnings.

#### DISCUSSION

Dr. Harry Woodruff, Joliet: Dr. Roth has presented an interesting paper on a very practical subject.

His argument for a careful physical examination by a competent internist is of course unanswerable. However, when we discuss the question of old age and degeneration, we confront some difficulties. Old age is not a definitely standardized condition; but is comparative or relative. We know that from birth until death at an advanced age, that tissue change is a constant factor. We know that this change is nowhere more manifest than in the lens itself. We know that there is a distinct nucleus formed in the lens at a comparatively early age. Becker's theory of cataract is that in certain cases, the cortical layers which lie next to the nucleus are not able to adapt themselves to the sclerosing nucleus and consequently spaces form between them which fill with fluid, and when fluid forms, opacity is a necessary consequence.

Another theory is that the first change is in the aqueous. I have been going through a very unfortunate experience. A man 48 years of age who has been under my care for several years, developed cataract of the sclerosing variety. When vision in the poorer eye had been reduced to less than 20/200 operation was undertaken. Much to my surprise, with the completion of the incision there was such an escape of aqueous that the eye ball collapsed and the only way in which the lens could be removed was by the hook placed back of the lens. There was considerable cortex left in the eye which was rapidly absorbed by the abnormal aqueous; but unfortunately after the opacities had cleared so that the ophthalmoscope could be used, the presence of a retinal detachment was discovered.

This patient had had very thorough physical examinations and there never could be found anything which would explain this condition. We are confronted with the same condition in the other eye. Obviously some other method of procedure must be used. Whether in this case an abnormal aqueous, and abnormal vitreous are the primary factors or abnormal ciliary processes, and the sclerosing lens secondary, is not known. Perhaps it is all a part of some gland disturbance.

A third theory is that of light; an abundance of ultra-violet rays entering lenses which contain an excess of calcium or silicon (the lenses of the East Indians are said to contain silicon) cause them to develop opacities.

Perhaps some of you may remember Van De Hove's theory of the action of ultra-violet rays. His theory was that the rays were so strongly refracted that they acted on the ciliary processes thereby causing cataract by defective nutrition. There is some ground for the light theory as lens opacities are more frequent in the lower part of the lens than elsewhere, the lower part being more exposed to direct sunlight.

In looking over Dr. Roth's paper I was impressed by the fact that they have gone over this one thousand or more cases, and I cannot help thinking what a valuable thing it would be to start out in practice with the keeping of a careful tabulation of these cases—a little sketch of the location of these opacities, with, of course, a general physical examination and a record

of these various findings. No one is perfect by any means, no one could pass 100 per cent. examination.

You are certain to find diseased teeth or tonsils or what not, although the patient is in apparent good health, but good health is simply a standard which is a set up to measure from, there is no sharp line of demarcation between health and disease, only in the higher manifestations. Neither is it always possible to draw the line between degeneration and low grade inflammation. I think it well to accept the doctor's view point and to consider all forms of cataract as diseased conditions and search for causes.

Dr. Leo Mayer, Chicago: Dr. Roth's paper has brought up many interesting factors, and in addition to some of the experiences Dr. Woodruff gave, we have to look at it from the economic standpoint of the individual. He suggests that this change in the lens be called something different from senile cataract. I think that is certainly a good suggestion. Because of our use of the slit-lamp we know of the changes which begin in the lens at the time of birth and are progressive. We know that the nutrition of the lens is impaired as in other organs of the body, and I feel that these changes in the lens which are seen early in adult life should be called adult cataract, not senile cataract, because the patients are not senile, but they do show changes and opacities which might well be called adult cataract. Another good point that Dr. Roth brought out is the fact that these general examinations are very valuable not only to us as eye men, but to the general practitioner also, to keep the patient in touch with the general condition as well as the eye condition. It seems to be up to ophthalmologists to put over the idea to the patient and to the public that we are interested more in general conditions as they affect the eye, and that point I feel should be emphasized very greatly.

Dr. H. L. Ford, Champaign: I should like to ask Dr. Woodruff what type of operation he would contemplate doing in the second eye.

Dr. Harry Woodruff, Joliet: In reply to Dr. Ford, that subject is not under debate, but if you want me to answer it I will tell you what I have in mind. Nobody who has not had this experience can just exactly appreciate the case, because you usually see these cases of fluid vitreous in definitely diseased eyes, injured eyes, or eyes with a hyper-mature cataract and all that, but this man is only 48 years old, and I feel certain that it will be impossible to extract that lens without the same thing happening and I know of nothing to do but a needling operation. That is unusual at that age, but bear in mind that he has an excessive amount of aqueous in that eye, it is all aqueous, and I think that the lens might absorb following the needling.

Dr. J. H. Roth, Kankakee (closing): In regard to the question that Dr. Woodruff raised about the opacities appearing in the lower part of the nasal portion, I have often wondered about that myself. I have never been able to find any explanation. Dr. Woodruff cited this case with excessive aqueous in the eye. The patient we had with this condition was

older, in the 70's. The routine examination in the hospital requires a Wassermann blood test; however, many times we do not get the report on the Wassermann until after the operation. In the case we had similar to Dr. Woodruff's the report came back 4+ Wassermann, and the old man died of aortitis within a year.

I will say this in passing. Only 105 of the 1,300 cataracts came to operation. That does not mean cataracts that came in, in which the cataract was entirely mature. This is the incipient cataract—105 of these went to the operating room. Dr. Schultz asked this question—"What do you consider the causative factor." We send the patients to the internist and almost always the report comes back cardiorenal disease. The next most frequent pathology is found in teeth, then we find other focal infection—the prostate, the gallbladder, etc. The usual report however is cardio-renal disease.

## THE COMMON COLD IN INFANCY AND CHILDHOOD

JOSEPH BRENNEMANN, M. D.

CHICAGO

In common with what all the other speakers have said, I would like to say that I was assigned the subject of the "Common Cold in Infancy and Childhood." The chief trouble I shall have in discussing that subject is in being able to know what I am talking about and in being able to restrict myself to that subject. The reason for that is that perhaps I do not have a perfectly clear cut idea of the limitations of a common cold because it is awfully hard to know where the common cold ends and where other things that are much worse than the ordinary common cold begin, such, for example, as sore throats, tonsillitis, etc. It is a common experience to see in the same family a father with perhaps a common cold which the mother acquires as a result of contact; one of the children may develop glands in the neck or an adenitis and possibly another one will develop one of those more serious things that, if one is not scientifically accurate, will perhaps be called the "real flu" or grippe. As a matter of fact, they doubtless all have the same etiology and clinical significance except that there is a different manifestation in the various members of the family.

When we come to consider the etiology of the common cold we must admit that we know relatively little about the specific etiology. We do know some other things. We know, for instance,

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that there is a distinct individual susceptibility to colds. This was especially emphasized by Czerny in his clinical complex of an exudative diathesis, more or less identical with the lymphatic diathesis that preceded it. We know further that most children after having a number of these infections either because of that fact or because of advancing years acquire a certain amount of immunity to these infections. I think we all have the feeling that as long as the child is kept at home in the first two or three years of life he doesn't develop as many colds as when he begins to go to the kindergarten, or even more so, to the nursery school. It has always seemed to me that there was an indication rather to protect children to some extent during that early period because I think it is during that period that they have rather more severe manifestations and complications than during the later period.

I have long been interested in the apparent fact that susceptibility to these infections is not as marked in the neonatal period as it is somewhat later. In an infant ward I am terribly afraid of having children together, even though they are cubiclized. It is a very common thing to see most of the children in an infant ward acquire an infection of this sort from one source or another and manifest rather severe symptoms and complications. It seems to me that babies in a maternity ward do not run the same danger. There is, of course, to be considered the fact that they are still in good condition and that they were in a favorable environment before they were born. On the other hand, the children who come into an infant ward are usually in a poor state of nutrition, have not had their vitamin needs covered and have not had the proper hygienic surroundings. Probably for such reasons they are more susceptible to these things than is the newborn baby or the child in private practice. It is probable, too, that the colostrum has some protective action against infection. It has been shown, too, by McKhann and others at Harvard that placental extract when injected provides definite protective immunization against measles and other diseases. I think it is possible that there is some such action at that time rather than that it is the mother's milk which does it as is commonly held. As to what that individual susceptibility or lack of susceptibility consists of I do not know. Somebody recently

wrote something on the biochemistry of the body with reference to that. That, of course, merely passes the buck. An inherent tendency to hyperplasia and infection of lymphatic tissue to which I have already referred seems to play a part. Someone has recently reported brilliant results in the protection of the patient against these infections by the removal of the uvula which he considers an atavistic structure peculiarly vulnerable to infection, analogous to the appendix. So startling a claim would seem to require confirmation before being fully accepted.<sup>1</sup>

We know one further thing about these colds and allied conditions and that is that they are all contagious. Every pediatrician knows this. He is constantly encountering a familial infection and he has long used as a prophylactic measure when he finds one member of the family with a cold or gripe or sore throat, the injunction to "keep the child isolated and away from the others." Unfortunately, the damage has usually been done by the time he has been able to institute that procedure. Contagiousness means that the disease is due to an organism. That organism may gain lodgment from contact with another person, but the infection may also be endogenous in origin. In other words, we get colds by contact with others, but we can also acquire such an infection from the organisms which we are constantly and normally harboring in our throats when some unusual condition arises such as chilling, exposure, wet feet or God knows what.

I think that all of these infections have become more frequent in recent times than they used to be, probably because of the fact that our mechanized civilization has crowded us more and more into closer contact with one another in the home, in the larger schools, in the movies, and in all the other ways in which contacts have been widened.

The tonsils and adenoids have played a leading role in all discussions along this line. I think we are becoming gradually convinced that the adenoids have a good deal to do with such infections but that the tonsils have relatively little to do with them. Certainly the evidence from personal experience, from Kaiser's enormous statistics and from the statistics of others tends to show that removal of the tonsils has very

1. Ewens, Arthur E.: Factor in Susceptibility to the Common Cold. *III. M. J.* 65 : 352, 1934.

little effect upon the incidence of colds and that coughs, if anything, occur more often in those who have been tonsillectomized than in those who have not been.

Paranasal sinusitis doubtless plays a prominent role in initiating many colds. My own attitude toward sinuses has always been rather mellow and conservative. With nearly every cold that I have ever had I have felt that I had a sinus involvement and that this was a normal part of the course of such an infection. I think that most children who have a severe nose and throat infection have some involvement of some of the sinuses and that this is not the same as "sinus disease" unless the infection persists and becomes chronic. Kerley has especially emphasized the importance of sinus infection in the causation of colds and has recently reported the 781st case in which he maintains that a tendency to common colds has been removed by a simple method of treatment of the sinuses.

As to the specific cause, we know from the work of Dochez, Rivers and their associates that there is considerable evidence that it may lie in a filterable virus, now usually called simply "virus." They feel that the primary cause is probably a virus and that the streptococcus, staphylococcus, pneumococcus and other organisms of that sort are simply secondary invaders. The other view assumes that these organisms together with the influenza bacillus, Friedlander's bacillus and others, are the actual cause in themselves of the infection. Certainly the streptococcus plays an important role no matter whether primary or secondary.

As to symptomatology, we are, of course, all familiar with the common banal cold with which there is a running nose, a scratchy throat and little or no fever. The difficult thing is to tell when we have just a simple common cold or something more or whether a common cold in one person may not lead to something worse in another person with whom he comes in contact. I might illustrate as follows: I recently suddenly had a running nose. I thought it was allergic at first but it turned out to be a real rhinitis. After a day or two I had a definite sore throat. Just now I have a cough so that it has evidently gone further than I had expected. In my experience one can neither tell in advance what a so-called common cold is going to amount to nor what

manifestations of a far more serious character it may lead to in a contact individual, especially a child. I have myself never been able to distinguish rigidly between a cold, sore throat, a pharyngitis, "flu," grippe, and throat infection except in the case of grippe and influenza at the time when they appeared in pandemic proportions. We certainly know little or nothing as to whether all of these things have a common etiology or not. There is a good deal of reason for thinking that they do not have.

With any of these infections we can have, outside of the ordinary course with which we are all familiar, three main lines of development: Except for the fact that there is a primary respiratory tract infection, we may be able to find nothing else clinically except a temperature of 102 or 103 or 104, lasting sometimes for five or six weeks and always ending favorably. Finkelstein speaks of these protracted fevers in his admirable book on diseases of infancy as "protracted fever of grippe." It is sometimes a comforting thing to know that there is such a thing as this prolonged fever when one sees a child that started with a grippe infection and runs a long high temperature without other manifestations.

The second development occurs by direct continuity from the throat itself. In other words, we can have all of the nose and throat involved together with the sinuses; there may be a retropharyngeal, peritonsillar or retrotonsillar abscess; there may be a cervical adenitis; there is commonly a conjunctivitis and a stomatitis. Frequently and most seriously the infection may spread to the middle ear along the eustachian tube and there lead to mastoiditis, sinus thrombosis, brain abscess, or meningitis. The latter may be serous or purulent and may arise without evident previous clinical evidence of mastoiditis. Another direction may be toward the lung involving the larynx, the trachea, the bronchi, and possibly leading ultimately to a bronchio-pneumonia.

The third development may be along systemic lines. We may have a carditis, a nephritis, a neuritis, an encephalitis, a meningitis, a peritonitis, a pericarditis, and a variety of skin manifestations such as purpura, erysipelas and allied conditions, erythema multiforme, etc. To me one of the most interesting associations has been that of these infections with appendicitis and with



abdominal pain not appendiceal in origin. I am convinced that more than one-half of the cases of appendicitis follow these infections. I think you will agree with me if you will attempt to check up on these cases. Peritonitis in the older child usually follows an appendicitis; in the younger child and in the infant it more often follows some other infection and, because these are the most common infections, it most often follows these.

One of the most interesting things to me about these infections is that they occur periodically in epidemic form and that there is a striking variation in the genus epidemicus. Every year we have three or four of these epidemics that differ from one another and yet the manifestations are peculiarly constant in each epidemic. Sometimes we have severe ear infections with serious complications, other times we have persistent coughs, sometimes more retropharyngeal abscess, sometimes, as Grulee reported in one instance, an unusual incidence of acute hemorrhagic nephritis.

The diagnosis itself of one of these infections is not always easy. In the ordinary case it is. In others one has to consider allied conditions. The diagnosis rests naturally first on the symptoms and evidence of trouble that are revealed by the history and an examination of the nose and throat; second, upon the fact that there is an epidemic current at the time; third, that some member of the family has a similar trouble or that there has been direct contact with someone having this infection; fourth, that there is some complication which can arise only from such an infection, such as a cough, an otitis media, a cervical adenitis, or a laryngitis.

In the differential diagnosis, probably the thing that bothers one most often is the differentiation from allergic conditions. There is no doubt that there are a lot of people, I speak again from personal experience, who wake up in the morning with a running nose and need four or five handkerchiefs in a very short time. They wonder if they have "another one of those colds." In two or three hours everything is over with and one is sure that it was not just another cold. The rest of the handkerchiefs that have been taken along for the day are not needed. Ordinarily it is easy to differentiate allergic conditions from the fact that they are sudden, frequently recur-

rent and transient, and without complications or sequelae. A demonstration of an eosinophilia in the nasal secretions which we have seen up to as high as 70% of all the leukocytes may settle the matter. The use of skin tests may be of distinct value.

The treatment naturally divides itself into prophylaxis and cure. An important point in prophylaxis follows from what I have said, namely the avoidance of contact. We are extremely strict about that in the Children's Memorial Hospital and especially in our infant wards. Every intern, nurse and attendant who has a cold that is not allergic is taken off the ward and if they have a temperature they are put to bed until the temperature is normal for a day or so. This is especially important in infant wards where there is a terrible mortality from these infections. I might say that in that connection no baby ought to be admitted to an infant ward that is not seriously ill, and that cannot be taken care of with reasonable assurance outside of the ward. As a result of this policy, in a hospital with 265 beds we frequently have only 7 or 8 babies and I am sure that both mortality and morbidity have been reduced by that procedure. In other words, we keep babies out rather than get them in. That this is not alone our experience is illustrated by the following: I recently visited a very fine clinic in which one of the men who took me around began to tell me that a certain child came in with a certain trouble and "as usually happens" he developed a respiratory tract infection, an ear, etc. I said, "Did you say 'usually' or 'occasionally'?" To which he replied, "Well, I guess I can't fool you. I said 'usually'".

The second thing we naturally think of in connection with these infections is the building up of resistance to infection. Resistance is still a rather intangible item. We naturally think of our most recent allies, the vitamins. For years we have given cod liver oil, exposed children to sunshine and the quartz lamp and more recently have used viosterol and haliver oil in various combinations. I have myself given barrels of cod liver oil and I can frankly state that I do not know that cod liver oil has ever reduced these infections in children to whom I have given it. In a general way, of course, it is a good thing. It gives them vitamin D and A and makes for

a rounded diet. It is difficult to estimate the influence of any of these things in a matter that does not admit of control. With vitamin D, sunshine, quartz lamps, viosterol and haliver oil more or less out of the picture in this connection, we naturally have another vitamin offered to us—this time vitamin A. It has ever been called the “anti-infectious” vitamin. From animal experiments we know that when the animal is sufficiently deprived of vitamin A it has serious changes in all of its mucous membranes including those of the respiratory tract, that this predisposes it to colds and that it therefore has repeated respiratory infections. For this reason, caritol and carotene are now much in the limelight. One of the infant food houses is putting out a complete food for a young infant containing cod liver oil, orange juice, and carotene. The joker, of course, lies in the fact that no human being is ever so completely cut off from vitamin A that his condition is analogous to that of the experimental animal. The reports of the late Dr. Hess and others lead one to think that an added amount of vitamin A does not increase a child’s resistance to these infections.

“Cold shots” I have had no experience with. I would think myself that cold shots were hardly sufficiently scientifically and specifically established that one would be justified in using them except perhaps in periods of depression as at present when people insist upon it. At such times I think it would be justifiable to use them and also for psychological reasons because if you don’t give them, somebody else is going to do so.

As to active treatment, there is to my mind one paramount item: Rest in bed as long as there is any fever. It also helps in the matter of isolation. It has been said that we recommend the things that we like best ourselves and that may possibly have some influence in my case, but I am sure that it is the most important item.

I heartily agree with what Dr. Black has said about the temperature of the room. I think the room should be warm. I don’t care so much about fresh air as I do about having the room moderately warm, or, put it the other way, that it is not cold. Our lay advisors have not yet quite gotten over the idea that fresh air is the important thing, no matter what the temperature may be. I think that is the bunk.

As to local treatment, I myself have never

used such things as argyrol, neosilvol, hexylresorcinol, as nose drops or applications to the throat. I know the names of some of them but I do not believe that they do a particle of good. In the first place, the nose is full with an outward current that carries the medicine away. In the second place, the germs that are doing business are probably beneath the surface. In the third place, I have to be shown that anything that is as unpleasant to a child as putting nose drops into his nose or spraying or swabbing his throat does some real good before I want to do what I know to be harmful. I think swabbing is peculiarly pernicious and should never be used. At most, even if it had something to be said in its favor it would influence only a small portion of the affected mucous membrane.

Astringents such as ephedrine, epinephrine, menthol, etc., may do some temporary good and are less irritating than watery solutions. One must remember, however, that there have been a number of lipoid pneumonias reported that have apparently resulted from the instillation of oily substances into the nose. I do think that boiling water in the room to which has been added a teaspoonful of compound tincture of benzoin every so often, together with a few drops of oil of eucalyptus, is beneficial. I think most of us have felt a relief that comes from entering a room in which there is a vapor of this kind. Possibly the medication is superfluous but it has a psychological effect from which we can as yet not completely divorce ourselves.

Abortive treatment such as the use of the hot bath, large doses of aspirin, or Dover’s powder, or a toddy, the latter of which may be quite agreeable to older people, has, I believe, no useful purpose in the treatment of these infections in children. I think aspirin has a distinct place as an alleviator of discomfort rather than a reducer of temperature and should be used freely if there is discomfort due to fever. I do not believe it is necessary, or perhaps even desirable, to reduce a temperature of moderate degree because we are not sure that a fever is not one of Nature’s ways of combating an infection. If the temperature is extremely high, say over 105 or 106, there is nothing that has as favorable an effect from every standpoint as the initially tepid pack, cooled down to the desired point by spraying colder water over the sheet that the child has been wrapped in.



As to the use of cathartics at the beginning of any infection, by which I mean the purge that is always recommended, I think that goes back to the time when as Osler said, "A bloody Moloch sat in the Chairs of Medicine" and everybody was bled even if they had a hemorrhage. It is, of course, desirable that there should be a movement but that is all that is necessary and whether procured by a mild laxative or by an enema is to my mind immaterial.

As to the diet, I have always allowed any child with a temperature that was not due to appendicitis, gastric ulcer or some such condition, to eat whatever he wanted to eat. I think it is utterly unwise to restrict the diet in any ordinary illness to liquids. There is, on the other hand, one liquid concerning which I have a somewhat different attitude. Milk is a liquid when it is taken but it becomes a peculiarly very solid food after it enters the stomach.

#### DISCUSSION

Dr. Isaac A. Abt, Chicago: It is hardly possible to add anything in the way of discussion to Dr. Brennemann's paper, he has covered the ground so thoroughly.

It is interesting to think of Czerny's theories concerning the upper respiratory infections in infancy. It was he who thought that many of the colds and catarrhs were due to a constitutional state and an unfavorable reaction to certain elements in the diet. The constitutional state he called exudative diathesis and the offending articles in the diet were protein substances such as milk and eggs.

He clung to this theory even in his later years. I heard him as late as 1928 when exudative diathesis was almost on its death bed and allergy was in the ascendancy. He still maintained vehemently that, in accordance with his theory of diathesis, offending proteins were a frequent cause of upper respiratory infections.

Perhaps he was not so far wrong. While it is difficult to explain diathesis, it is also true that the fundamental facts of allergy need to be further elucidated. Nevertheless the theory of allergy and its practical use is more comprehensive, and is a considerable step in advance of Czerny's idea.

Recently much has been written about the relation of the acid base diet to the upper respiratory infections. While the theory is appealing, the practical application of the dietary regime is difficult, and disappointing in results.

Recently a number of American investigators (Dochez, Rivers) have called attention to the role of viruses in the causation of the upper respiratory infections. Bacteria may be associated with the infection, but the virus is considered the primary cause, and the bacteria secondary invaders.

So far as treatment of colds is concerned, I can only

subscribe to what Dr. Brennemann has already said. I think too that the use of vaccines is of doubtful value. Though Dochéz, in a recent paper, expresses great skepticism as to their efficiency, he admits that they may occasionally ameliorate symptoms, though the evidence is not conclusive.

#### THE AID OF THE X-RAY IN THE DIAGNOSIS OF BREAST TUMORS

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In 1913 Salomon published a monograph on local extension of malignant tumors of the mammary gland based on the anatomical, pathological and radiographic findings of sections of the breast after operation. We were unable to find another publication in the medical literature on radiography of the breast until 1929 when an article by Goynes, Gentil and Guedes appeared in the Spanish literature. Following this Warren, Fray, Ries, V. Paschetta, Romagnoli, Seabold and Vogel published the results of their work and drew some very interesting conclusions regarding the interpretations of the normal and pathological changes in the mammary gland.

Due to the topographic state the breast is difficult to radiograph but on a properly executed roentgenogram it is important that the rays strike the breast in an exact transverse position, otherwise, there will be superimposition of the roentgenographic image. In the flaccid or pendulous breast Seabold<sup>1</sup> has constructed a cradle that has proved satisfactory. The French<sup>2</sup> have adopted a technique similar to ours, except they mold the film to the contour of the breast and thoracic wall, believing that it produces less distortion of the mammary image. In our own work we have used a rectangular compression bag capable of being filled with air after it has been placed under the breast. The patient is placed obliquely on the radiographic table. The head lies on the arm corresponding to the side being examined, while holding the other breast out of the way with the free hand. All clothing over the breasts is removed. The central ray is directed along an imaginary line extending from the sternal to the axillary base of the gland. The factors are: 36-inch distance, kilovoltage varying from 55 to 70, depending on the degree of penetration desired, 100 ma with an exposure of 3/10

to 1 second with the Potter-Bucky diaphragm and double intensifying screens.<sup>3,4</sup> By using the above factors there is no distortion of the breast structure and the time is sufficiently short to eliminate movement. Several negatives using different exposures may be necessary to establish a clear concept and the value of serial study and stereoscopic negatives in the diagnosis of certain conditions cannot be overestimated.<sup>5</sup> In an attempt to improve the method, opaque substances have been injected into the milk ducts of the living; excellent images have been obtained but in the cases reported by Ries<sup>6</sup> inflammatory reactions and abscesses have developed. Certainly the method should not be recognized until some less irritative substance is found.

The roentgenogram of the normal breast shows four distinct anatomical zones of different densities.<sup>7</sup> 1. The cutaneous zone with confirmation of the nipple and skin margin in profile. 2. The adipose zone of varying degrees of thickness and showing the fibro-glandular prolongations from the mammary mass to the skin. 3. The glandular zone with the structures appearing as a pyramid, limited at the back by the retro-glandular zone, with some irregularity of the anterior margin, especially in the region of the nipple due to the formation of milk ducts. 4. The retro-glandular zone appearing as a smooth, narrow, clear space separating the base of the breast from the pectoral muscles.

Two distinct histological patterns of the glandular zones have been described<sup>8</sup>—mazoplasia and cystiphorous desquamative epithelial hyperplasia. Mazoplasia is the term given to the type of desquamation of epithelial cells in the terminal ducts and their acini accompanied by hyperplasia of the pericanalicular and periacinous connective tissue and often with the formation of ducts and acini. Of the roentgenogram this state is characterized by a frond-like appearance of the parenchyma with the converging striations forming a fine indistinct band beneath the nipple and varying amount of non-opaque stroma between the mass of the gland and the derma.

Cystiphorous desquamative epithelial hyperplasia begins as a desquamative epithelial hyperplasia that ends in the formation of cysts. These breasts are often "shotty" to palpation and correspond to the state of chronic cystic mastitis. On the roentgenogram the fibro-glandular stria-

tions are marked; the parenchyma appears to fill all the available space to the derma and there is a broad, dense band beneath the nipple. It is in these breasts that both large and small cysts are found. Between these two extremes are breasts showing characteristics of each type. Whether one accepts Cheatle's or Handley's<sup>9</sup> explanation of the histological changes accompanying these different states, each presents a typical appearance on the roentgenogram.

Pathological processes, either neoplastic or inflammatory, are shown on the roentgenogram by alterations in contour or changes in density of the anatomical zones of the breast. Microscopical sections of the whole breast have been made showing the alterations in contour and outline of the different zones of the breast and also the changes in density with a correlation of the microscopical and roentgenographic findings.

*Cysts.* Cysts are associated with the state of cystiphorous desquamative epithelial hyperplasia and the multiple generalized bilateral cystic involvement is shown as well as the localized isolated cyst. The roentgen findings are characteristic; spreading from the interior of the glandular parenchyma, which is rather dense, are many relatively clear areas of varying size. The clear retroglandular zone is shown and occasionally involvement of the axillary structures.

If a cyst arises in a localized area of the cystiphorous state, it presents a mass more opaque than the rest of the gland—slightly irregular in outline and may give the appearance of a faint, solid tumor but does not have the smooth, dense well-defined outline.<sup>10</sup> A cyst containing fluid is relatively less dense than a solid tumor.<sup>11</sup>

After the menopause the roentgenogram shows varying degrees of atrophy of the glandular structure with an increase in the amount of non-opaque stroma and a reduction in the fibrous striations. This replacement is far more complete in mazoplasia than in chronic cystic mastitis. The irregularity of the glandular atrophy may lead to soft mottled shadows representing residual lactating acini<sup>12</sup> or senile parenchymatous hypertrophy.<sup>13</sup> The glandular atrophy permits greater density of the cystic lesion than the surrounding stroma.

*Solid Benign Tumors.* Solid benign tumors appear on the roentgenogram as circumscribed opaque areas, often multiple, with a dense peri-



phery but no evidence of invasion of the adjacent tissue. The benign tumor pushes aside the fatty tissue and other constituents of the breast. There may be distortion but no interruption of the striations. The retroglandular zone is clear and no disturbance of the muscle planes. Fibro-adenoma is the only tumor that can be traced directly to mazoplasia.

*Papilloma.* There are no characteristic roentgen findings to identify these microscopic lesions. The significance of a serohemorrhagic or a hemorrhagic discharge from the nipple is a moot point. Bloodgood<sup>14</sup> is of the opinion that it more often accompanies a benign rather than a malignant lesion. Deaver and McFarland<sup>15</sup> state that a bloody discharge, in a majority of cases, is due to papillary growths. Adair<sup>16</sup> says a dark bloody discharge always means a duct carcinoma. The consensus of opinion seems to be that discharge from the nipple cannot be regarded as of great significance in differential diagnosis.<sup>17</sup> One finds on the roentgenogram evidence of cystiphorous desquamative epithelial hyperplasia; this, with the bleeding from the nipple warrants a presumptive diagnosis of papillomata in the absence of a mass or roentgenologically demonstrable tumor.

*Fibrosis.* The roentgen appearance of fibrosis of the breast is often not as confusing as the clinical. One sees on the negatives, except in the cases of local trauma,<sup>18</sup> many faint, irregular masses of scar tissue involving both breasts with fine striations extending into the axilla, but no abnormalities in the contour of the anatomical zones.

*Carcinoma.* Malignant tumors of the breast infiltrate and destroy the neighboring tissue. They are without definite demarcation and characterized by proliferation. In the more advanced cases a band extends from the nipple to the tumor mass with a loss of the normal muscle planes. On the roentgenogram one sees alterations in contour and density of one or more anatomical zones. The tumor appears rather dense and irregular with interruption of the striations. The periphery may be feathery or more compact than the mass, giving a false sense of encapsulation due to the compression of the surrounding tissues. Extension into the lymph nodes in the axilla appear as smooth dense opaque

areas, while the inflammatory nodes are faint and irregular in outline.

Inflammatory carcinoma of the breast presents such unusual manifestations that the clinician is often misled. It has been described by many writers with such variations as to suggest that uncertainty exists as to the nature of this lesion. The rate of growth is rapid and the tumor may involve the entire breast and be fatal in a few weeks' time. Fortunately, the condition is rare. Age, trauma or previous lactation apparently do not enter into the etiology. The differential diagnosis must be made from abscess of the breast, erysipelas, radiation changes, tuberculosis, ulcerating carcinoma of the breast, Paget's disease and gumma. The roentgen examination in inflammatory carcinoma of the breast shows a homogeneous opacity over the area involved and only by increasing penetration are we able to show the breast structures, with the increased fibrous tissue change, the definite tumor mass and marked thickening and infiltration of the skin with the underlying structures adherent to it.

It is possible to study radiographically the mammary gland. The technical factors of the examination are important. The value of the method is shown by the high percentage of diagnostic accuracy in the differentiation of benign from malignant lesions.<sup>19</sup> The identification of early carcinoma in the presence of chronic cystic mastitis before the menopause may be difficult, however, the majority of individuals who come for an examination with the history of a lump in the breast are encountered after the age of forty<sup>20</sup> when the involutional changes are such that the neoplastic characteristics are easily identified.

The limitations of this method are: The inability to recognize<sup>21</sup> microscopical areas of cancer; early malignant degeneration in benign tumors and early carcinoma associated with chronic cystic mastitis. Roentgenograms may establish the presence or absence of a mass often before the disease is clinically apparent; define its mammary or axillary extensions; reveal multiple tumors, which are not necessarily benign; call attention to the importance of distant secondary malignancy;<sup>22</sup> reveal both benign and neoplastic changes and a transition of a benign into a malignant lesion; depict those changes characteristic of the spread of carcinoma along

the connective tissue septa. In many cases where the disease seemed to be confined to a single nodule, microscopical sections of the whole breast revealed the frequent presence of impalpable axillary glands and involvement of the lymph structures along the pectoral muscles. These changes, dangerous because the cells permeate along these septa, reach the more active lymph streams and are easily carried to distant parts. The roentgen examination offers a permanent record of the findings; is a means of serial study of the breast; has none of the physical limitations of transillumination and in those cases positive for carcinoma, the need for biopsy can be eliminated and is exceeded only by the microscopical examination of excised tissue and we believe will bring patients to operation at a stage when surgery can offer more than palliation in cancer of the breast.

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### DISCUSSIONS

Dr. Fred H. Decker, Peoria, Ill.: I think Dr. Lockwood has been extremely modest in evaluating his part in the development of this particular method or examination. Even though he was not the founder of this method, we know that he has brought it up to a high point, where it will soon become a standardized portion of roentgenological work.

Unfortunately, we must admit that to date this work has not been popularized to the extent that internists and surgeons will refer their patients to the radiologist for this help. We know that in institutions where cooperation is developed to a high degree this is being done but unfortunately, many of us are working outside of institutions where that cooperation is present. For that reason my opportunities in this line have not been as great as I would like.

However, the possibilities of this examination are very intriguing. We do know that a correlation of the clinical and pathological findings in breast tumor have frequently indicated to us the rather negative value of certain portions of the clinical examination. We do know that to date biopsy is the method which we have to rely upon. We also know there are certain factors about biopsies which are not as they should be. We know that sometimes the pathologist does not obtain the portion of the tumor which tells the story. Sometimes, in fact, he may not receive any portion of the tumor at all.

In the second place, we know that there are attendant dangers to biopsy. It may be that, if the entire tumor is not removed, remaining cells may possibly take on a greater degree of malignancy and if there is a transplantation of cells, there is a possibility of greater growth in virgin tissue.

Lord Moynihan, a surgeon, and Soiland, a radiologist, have suggested the possibility of the treatment of malignant breast conditions by the use of interstitial radium or by the external application of x-ray. One very just criticism of their type of work has been the fact that they could not evaluate their results because, in the absence of a biopsy, a definite diagnosis was not present. For that reason, this method is particularly intriguing, or should be so, to the radiologists of today. We feel that the response of a mass to irradiation is not always a fair criterion of the type of cell making up that mass, because we know that certain inflammatory types of breast changes, are helped by



irradiation whereas, if we have scirrhus, slow growing type of carcinoma, the response may not be great.

It is for these reasons that methods such as Dr. Lockwood has suggested should be tried to their fullest extent. I express again my appreciation to Dr. Lockwood.

Dr. I. H. Lockwood, Kansas City, Mo.: I do not want to leave the impression with you that this method is to supplant any other type of examination of the breast. I distinctly feel that the clinical examination should be carried out, probably more thoroughly than we have ever done it before. Trans-illumination must not be overlooked. I believe that the x-ray examination of these breasts will still add something in a great many cases that the other two methods have not given.

As far as the biopsy is concerned, I am a firm believer in it. I think that none of you, however, would have a biopsy done upon a bone tumor without an x-ray negative, and the time is coming when you are not going to have a biopsy done upon a breast without an x-ray negative.

To make this work a success requires a study of the anatomy, as Dr. Orndorf has brought out, also a study of the physiology and pathology of the breast tissue.

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## THE REHABILITATION OF THE CRIPPLED CHILD FROM THE STANDPOINT OF ORTHO- PEDIC SURGERY

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In considering the subject of "Rehabilitation of the Crippled Child from the Standpoint of Orthopedic Surgery" two questions arise. What is orthopedic surgery and what is its relation to crippled children? The term orthopedic comes from the Greek *orthos*, meaning straight, and *pais*, meaning child. Orthopedic surgery has gradually come to mean the straightening of children and then has crossed age limits to mean the surgical care of crippling conditions regardless of age. The National Board of Orthopedic Surgery has tentatively accepted the following definition of orthopedic surgery, "That branch of surgery especially concerned with the preservation and restoration of the function of the skeletal system, its articulations and associated structures"—a definition broad in its scope but emphatic in its reference to function of the bone and joints and structures having to do with this function.

It is from this vantage point that the orthopedic surgeon views the problem of the crippled child. It is not for him to judge or weigh the economic and social merits of any given case nor to be ruled by sentimental emotions. It is for him to reduce the handicap in any particular case to the best of his ability. Until we can comprehend the forces controlling our universe we cannot delay our actions in extending help to the handicapped.

Crippled children may be placed into the following groups for this brief discussion:

First. Errors of development.

Second. Accidents during or about the time of birth.

Third. Growth changes due to faulty nutrition or hereditary disease.

Fourth. Resulting from infections of the skeletal or the neuromuscular systems.

Fifth. Trauma.

Of the first group, those due to errors of development, only the congenital club foot and the congenital dislocation of the hip, will be considered because of lack of time. Congenital club feet of either the equinovarus or calcaneovalgus type should be submitted to carefully planned and executed treatment beginning in the first few days of life. The tissues of the foot will never be softer nor more yielding than at this early age. The most favorable results may be had by beginning judicious correction at this time. The foot must be over corrected and kept under observation to prevent recurrences, for months and years, in fact long after the parent is satisfied with the outcome. Treatment terminated too early is too often followed by deformity that will never yield to correction to a satisfactory degree. If operative measures need be resorted to, the function of the foot seldom reaches that of the normal.

Congenital dislocation of the hip must be brought for treatment during the first four or five years in order to secure the best result. Such a hip should be gently manipulated to a normal relation in the acetabulum and if this is successful, it should be retained in place for several months by plaster splint or brace. If reduction cannot be obtained without expending force, open operation is indicated. A mid-position between the routine manipulative reduction and the routine operative reduction is probably the best. The possibility of late growth changes in the hip joint, after reduction, must be kept in mind, for study

of such hips during adult life reveals that only a small percentage function in a truly normal manner.

Children representing the second group (accidents during birth) are seen in large numbers in any orthopedic clinic. Of this group, the case presenting spastic paralysis is most common. The clinical picture is extremely varied as to type and degree making it impossible to outline their care in any but a general way. These children are delayed in sitting, in walking and talking, although most will eventually accomplish these feats. Because we cannot judge these children by the same criteria as normal children, we are apt to underrate their mental capacity. Their facial expressions, speech, and ability to perform actions are distorted by the pathology present, thus making proper rating difficult, for these are the criteria by which most of us are judged in estimating our mental capacity. Much can be done for this group by patient training and judiciously applied surgery. The fundamental pathology can rarely be corrected but contributing factors may respond to treatment. Defects of vision should be compensated by glasses, foci of infection should be removed, dietary habits regulated. The deformities should be prevented or, if present, should be corrected by orthopedic measures, including a wide variety of surgical procedures. The orthopedic surgeon can testify as to the justification of the long drawn out care that is necessary in this group of crippled children.

The incidence of faulty development of bone, secondary to nutritional disturbances, is diminishing and will eventually be solved through social and economic channels rather than through medicine or surgery. The problem of scoliosis or lateral curvature of the spine may be considered as representative of this large group of cases. This type of deformity presents one of the major problems of orthopedic surgery. The combining of corrective apparatus with operation to stabilize the spine, revives hope and interest in this condition. The results on the whole are satisfactory in giving the patient relief from the fatigue resulting from this deformity. The complicated mechanics of a curved flexible column such as the spine, may be simplified by making this column a solidly fused unit.

Of the fourth group (resulting from infections) two entities are outstanding. These are

the loss of function from anterior poliomyelitis and from bone and joint tuberculosis. The principle of keeping the child straight is never more applicable than in "polio" cases. Impairment of muscle function should not be enhanced by skeletal deformity. Physiotherapy, braces and stabilizing operations of a large variety are available. Individual cases must be treated according to their own indications and not in a routine manner.

Tuberculosis of the joints still presents a problem although much headway has been made in its control by the generally improved economic standards of the last generation and the supervision of the milk supply.

In this type of infection, accuracy of diagnosis is all important, for by this, definite plans of treatment may be established. A positive diagnosis can be made only on the recovery of the B. tuberculosis or the identification of characteristic tubercle formation from the involved area. The tuberculin test is invaluable in young children. A consistently negative test by the Von Pirquet and Mantoux methods in varied dilutions practically rules out tuberculosis.

Tuberculous infection of a joint is always secondary to involvement elsewhere and the patient must be treated along lines as arranged for the tuberculous patient. Good food, heliotherapy and rest are the essentials in brief. If the more important function of weight bearing through tuberculous joints is to be preserved, the function of motion must be sacrificed. This may be accomplished by prolonged immobilization in casts or splints or by operative measures designed to ankylose the diseased joint. This latter method is widely used in dealing with adults but has only recently been applied to young children. The results of fusion operations on the spine, hip and knee are most encouraging from every angle.

Osteomyelitis and traumatic conditions cannot be considered because of lack of time.

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#### DISCUSSION

Dr. Hugh E. Cooper, Peoria, Ill.: Dr. Chandler has completely covered almost the whole field of orthopedic surgery in this paper. There are just one or two points that I would like to emphasize that he has already brought out. The first point was with regard to the treatment of club feet. The necessity of completely over-correcting these, cannot be too much emphasized. All of us see so many of them return after what was apparently a complete correction. We have seen them



return after six or eight months or even two or three years with a serious recurrence, which is much more difficult to reduce or to replace than was the original deformity. I never could see why so many of the German clinics insist on waiting six or eight months after birth before these corrections were made. I believe, as Dr. Chandler does, that if they can be taken in the first few weeks of life, certainly the correction is much easier.

I would like to say another word about the early diagnosis of tuberculosis in the large joints, hips, knees, etc. The problem of fusion in tuberculosis of the knee, where there is very little destruction, is relatively a simple matter. But where the case is a knee or hip joint, where the whole articular surface or in the case of the hip, where the whole head is destroyed, the problem of fusion is a very serious one. Some of these cases are treated as rheumatism or possibly Perthes' disease until serious destruction has taken place. If an earlier definite diagnosis can be made, even with the help of a biopsy, the patient may be saved much time and the fusion is a much simpler operation.

Every orthopedic surgeon who sees many spastic paralysis cases, I believe, has a tendency to pass them up because the usual results in treatment are anything but satisfactory and because many of the cases are sub-normal mentally. These cases are entitled to treatment and rather startling results are sometimes obtained. Many times the child is given credit for very little mentality when the delayed mental development is largely due to the spastic condition of the mouth and throat preventing the proper formation of words. The facial expression also often gives the impression of poor mentality on account of the spasticity of the facial muscles..

Dr. Chandler, in closing: During the past few years several advances have been made in the treatment of spastic paralysis. Cases of severe choreiform athetosis may receive definite relief from section of the extrapyramidal tracts of the spinal cord. We have done several with gratifying results. This operation gives promise of definite relief to a group of cases usually considered hopeless.

In the treatment of club feet, we do not limit it to the first few weeks. Treatment should begin within the first day or two. Early treatment gives real hope for the restoration of the foot to normal.

In the cases of joint tuberculosis, as Dr. Cooper mentioned, those with gross destruction have a much less favorable prognosis. The principle of operative fixation of the joint still holds. In questionable joint cases, we do not wait for bone destruction but hospitalize these patients for diagnosis. If the tuberculin tests are consistently negative, tuberculosis is eliminated.

## RADIOTHERAPY AND ELECTROSURGERY IN THE TREATMENT OF CANCER OF THE BREAST

*by*

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In assuming the responsibility for the management and treatment of cancer of the breast, the physician obligates himself to the proposition of keeping a constant vigil for new knowledge concerning the etiology, the mechanism and the relief of this disease. The etiology of cancer of the breast presents many unsolved problems, but enough real information has already been established to be of very great importance in its management. To be able to prevent cancer of the breast is obviously more important than to know how to control it after it is an established entity. When our knowledge of the etiology has advanced far enough, we may hope to prevent cancer of the breast. The mechanism of this disease must be mastered in order that methods of diagnosis may be developed and instituted, which will reveal the true character of the changes with which we have to deal. When these changes have become actual cancer, we must consider relief through irradiation, breast removal, or both.

Almost everyone who is concerned seriously with the problem of cancer of the breast will agree that if cases are presented for diagnosis and treatment at an early stage, it can be controlled in a very high percentage of cases. It is unfortunate that so many cases are not seen early. It is a fact, however, that the percentage of early cases has grown very rapidly in the past five years, and the percentage of late cases is proportionately decreasing. Cancer of the breast, as cancer in most other locations, is attended with very little or nothing in the way of symptoms to call the attention of the patient to the presence of so serious a situation. It, therefore, remains for us to determine through careful periodic medical examinations, the presence of early cancer. The diagnosis of malignancy is by no means a finished science. When it becomes evident that a deep-seated lesion of malignant character has escaped detection when our present methods of diagnosis have been instituted, a very pardonable excuse may be offered, but there

is little to be advanced for the failure of a physician to find a malignant lesion of the breast, skin, tongue, cervix, lip or mouth.

In addition to the time-honored methods of inspection and palpation together with a consideration of the history, the diagnosis of early cancer of the breast has received some very important contributions. Among these may be mentioned illumination, tissue-differentiation by x-ray and differentiation by therapeutic irradiation. Furthermore, recent information concerning the relation of physiological and pathological conditions in the pelvic genitals and their relation to changes in the mammary glands seem to open new fields which it is hoped will clarify some of the unsolved problems and form a basis for still more accurate diagnosis in certain conditions of the breast.

The importance of the light that is being spread on the diagnosis of cancer of the breast by the study of the functional disorders, the general condition of lymph stasis and lymph stagnation brought about through pressure from clothing and other causes, must be emphasized and studied. There seems to be little doubt about a very close relationship existing between mastitis and the ovarian function. Lewis and Geschickter have concluded that the follicular hormone, theelin, of the ovary is concerned with chronic mastitis (Brodie's disease) while the interstitial hormone, progestin, is concerned with chronic hyperplastic mastitis (Schimmelbusch's disease).

In chronic cystic mastitis, the anatomical changes are confined for the most part to the lactiferous tubules and ducts, while in chronic hyperplastic mastitis, the epithelium in the acini and the structures of the lobules of the breast are the principle anatomic change. The exact relation between mastitis and malignancy has not been established, but there are many reasons for believing that mammary dysfunction in some or all of its phases, associated with perverted pelvic genital influence is closely related to a precancerous state in the breast. The promise of the prevention of cancer by further investigation along these lines and the institution of corrective measures in arresting what may be a precancerous state, is a field that should be undertaken by our best talent.

The diagnosis of early cancer of the breast seems to begin when a localized variation of breast density is detected by illumination, by palpation

or in the variation of radiodensities as pointed out by Lockwood. With the shotty feel of hyperplastic mastitis determined, the variable sized tumors in cystic mastitis considered, with further differentiation and a general clinical study instituted, the final procedure of biopsy as the deciding effort in establishing a correct diagnosis may be instituted. The technic employed in the biopsy is exceedingly important. It should only be done with electrosurgical apparatus and the presence of a blue-domed cyst and its detection must be remembered as pointed out by Bloodgood. When a biopsy of the breast is carefully planned and the technic properly executed, I agree with Bloodgood when he states, "The chief danger from biopsy today is a misinterpretation of the microscopic picture and the chief danger in this is that a benign lesion will be diagnosed malignant and the patient will be subjected to an unnecessary operation or irradiation."

Preoperative radiation should be instituted as soon as it is shown that a diagnosis of a benign lesion cannot be made. After the irradiation is instituted, further investigation and observations may be conducted until the question of malignancy has been established. As may be expected, many cases will present very definite findings of their benign character after irradiation has been instituted. In such instances the irradiation does no harm and in many it is an actual benefit. On the other hand, if malignancy is positively diagnosed later, the patient has been given the benefit of irradiation as early as possible.

The general plan of management must now be decided upon, that is; if the treatment is to be conducted with radiation, x-rays, radium, or a combination of the two, or if surgical intervention is to be instituted with preoperative and post-operative irradiation. It is almost universally conceded that radiation with surgery increases longevity beyond that of surgery alone. The problems of the value of preoperative radiation and the possibility of substituting interstitial radium therapy for surgical measures has not been so definitely established. Electrosurgical methods possess distinct points of advantage in the surgical removal of the breast and therefore seem to offer greater promise of complete eradication or a longer period of freedom from disease manifestations than can be secured from interstitial radiation. Furthermore, the undesirable local



reactions are more frequent after radiation alone than after electrosurgery and irradiation.

In operating rooms where a modern electrosurgical generator is provided, from which you may conveniently have through the electrotome, coagulating, desiccating or cutting currents, a breast may be removed and all hemorrhage satisfactorily controlled without the use of ligatures, needles or artery forceps. With careful technic in the use of electrosurgical methods, the danger of reinoculating the wound with cancer cells expressed from the breast during operative manipulation is minimized. Areas in which there remains doubt about complete removal of all malignant infiltration should be left open for closure by granulation under the influence of postoperative irradiation. Flaps may be coapted and held in position by external metal clips, not by sutures, only when these flaps are sufficiently long to permit apposition without tension.

Far advanced carcinoma of the breast, particularly cases that have broken down and in addition to the pain and misery they experience, have also almost unbearable and uncontrollable odors, electrosurgical removal, with the site left wide open for granulation after the method described by Doctor Emil Beck, very often proves to give comfort, reduce the difficulties concerned with general care, and to prolong life.

In cases with still greater advance, where because of involvement of the deep vessels in the axilla and subclavicular area, electrosurgical intervention is not warranted, it is frequently possible to give comfort by intense radiation as a palliative measure.

In summarizing, I wish to state:

1. Preoperative radiotherapy is advisable in all cases of malignancy of the breast.
2. Breast surgery in malignancy is a field in which only electrosurgery should be instituted.
3. Post-operative radiotherapy is advised in all cases, but the technic varies in respect to the operative work done and the character of the malignant involvement.
4. Cases where surgical intervention is undesirable are becoming rare, but there is a small group in this class where primary involvement

has extended to a point where only palliative treatment by radiotherapy is indicated.

## DISCUSSION

Dr. Perry B. Goodwin, Peoria, Ill.: I have very little to add to Dr. Orndoff's paper because I think he has covered it pretty thoroughly. Of course, the experience that I have had has been limited on electrosurgery because many of our surgeons, as far as I have been able to know, do not use it. However, I believe and agree with Dr. Orndoff that if we are going to do any surgery around the breast the electro-knife is the method. Although cancer of the breast is an external cancer and anatomically removable, the stage in which it is removable is of short duration, because the axillary nodes become involved rather early, even if not palpable. We must consider this fact in all tumors of the breast.

We heard this morning from Dr. Lockwood another method of diagnosis, or assisting in diagnosis. I still believe we must use all methods obtainable, even to the point of biopsy. As we are getting and advising the laity to come earlier for diagnosis of cancer of the breast, it also becomes more difficult to be able to make those diagnoses. If we are going to make the diagnosis, I believe the final point of diagnosis is done by the biopsy and the microscope.

I have been trying to follow out Dr. Burton Lee's method of treatment of carcinoma of the breast, and that is preoperative radiation followed by surgery and postoperative radiation.

My method has been to use about 700 R. of radiation preoperatively, given to the breast through the whole mammary gland and lymphatic areas, as soon as possible, using about two ports, and then having the surgeon operate within a week. This, I believe, will probably get away from the inflammatory reaction that you get from radiation, by waiting.

Following the operation I try to follow up in at least about four weeks with a series of radiation, from 700 to 800 R. given over the whole breast and drainage areas, and, if there is any lymphatic involvement, possibly three series.

I have not had enough cases in the preoperative treatment to be able to give you any statistics, but Lee, in an article that I saw several months ago, reported that out of 217 cases (he had this similar type of radiation followed with surgery and then postoperative radiation), 41 per cent. of them were alive and well after five years; 130 cases, 35 per cent., were alive well after seven years, and 75 cases, or 22 per cent. and well after ten years. But in those that had involvement of the nodes, there were only 23 per cent. of all his cases that lived five years.

In my opinion, the method that Dr. Orndoff has given here, electrosurgery, is certainly a method which should be used if we are going to try to prevent dissemination of the cells.

I again wish to thank Dr. Orndoff for his wonderful paper.

## PANCREATIC DYSFUNCTION

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Faulty function of the islands of Langerhans of the pancreas, excluding that due to tumors and infections, has always been thought to manifest itself only in a lack of pancreatic secretion, known for generations as diabetes mellitus; and it has always been assumed that this disease alone represented pancreatic dysfunction. In recent years, however, the opposite condition in which there is a hypersecretion of the pancreas, called hyperinsulinism, has been described and many additional cases are finding their way into medical literature. Several such cases have been observed to have both diabetes and hyperinsulinism at different periods of their lives indicating the possibility of a common origin. If this is true, as is suggested by clinical evidence, then every hyperinsulinism patient is a potential diabetic, and neither one of these diseases is a definite disease entity but rather a phase of pancreatic dysfunction similar to thyroid dysfunction in goiter.

As in thyroid dysfunction where the same patient may at one time be hypothyroid and at another time be hyperthyroid there may also be dysinsulinism in that the poorly controlled internal secretion of the pancreas may be deficient at one time and in excess at another time. When excessive, it results in low blood sugar content or hyperinsulinism which may alternate with or be followed by a deficiency resulting in high blood sugar content or diabetes mellitus. This dysinsulinism may be manifested by inconstant symptoms of both hyperinsulinism and diabetes, in some cases symptoms of the former predominate while in others those of the latter are more pronounced. Such cases were described by Seale Harris,<sup>1</sup> John<sup>2</sup> and Weil.<sup>3</sup> In those cases, however, where there is a definite and constant pancreatic hypersecretion with resultant low blood sugar it may best be considered a disease entity in the term hyperinsulinism, just as its opposite is known by the term diabetes.

In addition to both hypo and hyperfunctioning of the same pancreas, there exists also an increased or decreased sensitivity of the diabetic

pancreas to insulin. Cyril MacBryde<sup>4</sup> reports five uncomplicated cases of diabetes mellitus two of which are insulin-sensitive and three are insulin-resistant. The insulin-sensitive patient needs very little insulin to correct his pancreatic imbalance while the insulin resistant patient needs huge amounts of insulin. Similarly Scott and Dotti,<sup>5</sup> in studying standardization of insulin in rabbits, found that individual animals may have either hypo or hyperinsulinism.

It is interesting to note that while diabetes has been known for generations, hyperinsulinism has been recognized only recently; among the earliest reports was that of Harris<sup>6</sup> in 1923. Yet according to Sippe and Bostock,<sup>7</sup> in reporting twenty-five cases of hyperinsulinism occurring in their private practice in Sidney, Australia, this condition is very common and has most likely existed as long as diabetes, but has gone unrecognized. In discussing this frequency, they say: "In a large series of cases met with in general practice, the percentage of cases of hypoglycemia was 0.47 and that of diabetes 0.51. Thus it will be seen that hypoglycemia is practically as common as hyperglycemia." Seale Harris<sup>8</sup> similarly feels that these two conditions are found in relatively equal proportions. He states, "Judging from the number of cases of hyperinsulinism now being reported by many clinicians and from blood sugar studies in 3,076 cases, in my series of 6,641 adult patients, largely ambulatory, with gastro-intestinal and nutritional disorders, it seems probable that hyperinsulinism is almost as frequent as the opposite secretory disorder of the insulin-forming cells of the pancreas, hypoinsulinism (diabetes mellitus.)"

The first pathologically proved case of hyperinsulinism was reported by Wilder and Allan<sup>9</sup> in 1927, in a physician, aged 40, with an inoperable carcinoma of the pancreas. The patient died a month after the operation and an extract made from the metastatic nodules in the liver, taken at autopsy, when injected into a rabbit showed insulin activity.

The decreased sugar content or hyperinsulinism in this case was associated with a definite tumor of the pancreas. In this discussion we are dealing only with dysfunctions of the pancreas not explained on an inflammatory or neoplastic basis but rather on a basis of secretory

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disturbance such as is found in the thyroid gland. Contrary to the microscopic findings, in goiter, histologic studies have not revealed any pathologic changes in these hyperinsulin cases. It seems quite definitely established therefore that, just as in diabetes, hyperinsulinism may occur without any demonstrable lesion of the pancreas. In severe cases of hyperinsulinism, however, microscopical changes are reported. Phillips<sup>10</sup> found hyperplastic islet cells at postmortem examination on a patient who died in an attack of hypoglycemia. Gray and Feemster<sup>11</sup> also reported hyperplasia of the islands of Langerhans in the pancreas of a child born of a diabetic mother.

In this respect we often see very early deaths in infants born of diabetic mothers, explained on a basis of hyperinsulinism. The increased blood sugar content of the mother has so conditioned the pancreas of the fetus in utero that there is an hyperplasia of the insulin secreting cells. After birth the sudden decrease of sugar intake in face of the hypersecreting islet cells produces a fatal hypoglycemia.

The histories in these cases which may be termed chronic or persistent hyperinsulinism, do not vary greatly except for intensity. The cases we have observed all give the history of having been chronically ill for a long period of time with various diagnoses and forms of treatment until the true condition was found by a blood sugar estimation. It has been noticed too, that many of these cases often give a history of diabetes or goiter in the family. The following case history is quite typical:

Female, nurse, aged 43, divorcee. Never pregnant. In the family history the father has diabetes, and the mother's sister had an exophthalmic goiter. The patient gives a long train of previous illnesses, the most prominent of which were attacks of vomiting and fainting spells. She was constantly seeking medical aid and at the age of twenty her appendix was removed at the age of thirty-six her gall bladder was removed and at the age of thirty-nine she was subjected to a gastro-enterostomy. Despite everything that was done she still had attacks of vomiting at certain intervals which were explained on a basis of adhesions, "nerves," etc. Finally at the age of forty-one Dr. Graham of St. Louis performed sugar tolerance tests and discovered that she carried a rather constant hypoglycemia. Her weight at this time was 115 pounds. She was started on treatment of 20 cc of 50% glucose intravenously. Vomiting attacks occurred occasionally but were easily controlled by 20 cc of glucose. Very soon however it was necessary to give her 500 cc of 10% glucose

to control the vomiting. The treatment was then changed to 50 cc of 50% glucose intravenously, which she now receives about every third month, in order to preclude impending attacks. It is now two years since the glucose treatment was started, patient weighs 146 pounds and feels well, provided she receives sufficient glucose.

Many such cases are undoubtedly receiving a great variety of treatment before the proper diagnosis is made. It has been found recently that a number of cases of epilepsy and epileptiform attacks have been associated with low blood sugar levels. It is reasonable to believe that many cases now diagnosed as epilepsy may later be classified as cases of hyperinsulinism. Watkins<sup>12</sup> speaks of a so-called typical case of epilepsy, considered and treated as such for many years, which was given rather prompt relief when finally diagnosed and treated as a case of hyperinsulinism at the Philadelphia General Hospital. Stephenson<sup>13</sup> similarly recites a case of repeated attacks of unconsciousness with anopsia, at the Mayo Clinic, which was immediately relieved of these symptoms by sugar intake.

These cases of pancreatic dysfunction are best explained on a basis of a secretory disorder of the pancreas which continues throughout life. There may however be another explanation for the cause of lowered sugar levels found in the prolonged illnesses of infectious diseases. The typical history is that of recovery from the original infection, but failure to improve. We saw a patient\* in the third week of lobar pneumonia recently, whose chest had cleared up completely but who had periods of marked delirium, and a peculiar type of respiration resembling Cheyne-Stokes. A fasting blood sugar was taken and found to be 62.5 mgms. per 100 cc. At the beginning of his illness his blood sugar estimation was 112 mgms. He was given 500 cc of a 10% glucose intravenously twice at 12 hour intervals and 50 cc of a 50% glucose 24 hours later. In addition various sugars, as much as could be tolerated, were given per mouth and in his fourth week of illness his fasting blood contained only 78 mgms of sugar per 100 cc of blood. In his fifth week of illness it was again necessary to give him 50 cc of a 50% solution of glucose intravenously to relieve symptoms of delirious melancholia.

It is possible that such cases of hypoglycemia may be of heptogenous origin explained on the

basis of loss of the glycogen storage function of the liver. It is interesting to note however that this particular patient is a physician 59 years of age, who had a great fear of diabetes and for many years has avoided sugars and starches in his diet. This would lead one to believe that if this condition is of hepatogenous origin, the pancreas may in such cases, be a contributing factor in producing the hypoglycemia.

In conclusion I would like to emphasize that:

1. Hyperinsulinism with hypoglycemia is found almost as frequently as diabetes with hyperglycemia.

2. More blood sugar studies may explain many nervous attacks, vomiting attacks and periods of unconsciousness on a basis of hyperinsulinism.

\*I am greatly indebted to Dr. Edgar M. Stevenson, of Bloomington, who very kindly furnished this case history, and whose cooperation made it possible to present this type of hypoglycemia.

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## DISCUSSION

Dr. Sidney A. Portis, Chicago: Mr. Chairman, and Members of the Section: I think we are somewhat indebted to Dr. Markowitz for bringing to this section his rather interesting discussion of hypoglycemic states.

There is no question that hypoglycemic states are much more common than the average general practitioner has reason to believe. Many patients with long

continued asthenia, when put on a very high carbohydrate intake are very markedly benefited, and many of their symptoms very definitely improved.

Dr. Markowitz compares these cases of pancreatic dysfunction with thyroid dysfunction. However, in thyroid dysfunction, we have pathological states which so frequently go hand in hand with clinical pictures while in disturbances in the pancreas our evidence, at the present time, is materially wanting. I am very much inclined to believe that disturbances of liver metabolism rather than just pancreatic dysfunction are more responsible for hypoglycemic states.

I have had patients who have had hypoglycemia and have tried them on small doses of insulin and found their symptoms to be markedly exaggerated and then given them intravenous glucose and have noted marked improvement.

The question of epileptiform seizures in relation to hypoglycemia has been known for some time. However, I very seriously question whether or not we have the right to call these patients epileptics in the light of our present knowledge of etiopathic epilepsy. Many of these cases, as you well know, are markedly benefited by a high ketogenic diet which is diametrically opposite to the above hypothesis.

The practical importance of Dr. Markowitz's paper or contribution, to me is not so much the recognition of epileptiform seizures, and not so much the recognition of nausea and vomiting, but it is of far more reaching importance to those of us who have to treat patients who are continually lowering their carbohydrate intake and necessarily their glyco-genic reserve by the fads and fancies of present-day dieting. How far reaching these low carbohydrate reserves that most women and some fanatical men are prone to bring about in their system will not be known for some time. However, there is a great deal of danger at the present time in lowering the carbohydrate reserve of the body by foolish dieting. Most of it is based upon an idea in the minds of the laity and even in some doctors that in order to decrease body weight, you must decrease the intake of carbohydrates. This is based on an entirely wrong premise. The way to decrease body weight is to give a patient his normal proportion of carbohydrates, fats and proteins, diminishing his total caloric intake but not disturbing the various balances in the body so that he may not have to draw upon his tissue proteins and therefore cause dysfunction which we note at the present time.

Dr. Don C. Sutton, Chicago: I would like to ask Dr. Markowitz a question. We see quite frequently, especially among women who for various reasons do without breakfast, the complaint of a feeling of weakness and fatigue about the middle of the forenoon. If you have them eat a fairly large breakfast these symptoms disappear. But of more interest is one particular case I have in mind. Quite a large man who does clerical work finds it impossible to go through the morning or the afternoon without the ingestion of food midway between meals.

Repeated examinations in his case have shown always



a normal blood sugar. But, nevertheless, he seems to be unable to maintain a satisfactory level for him by just the usual three meals a day. I have seen him a time or two when his symptoms simulated an insulin reaction and would be relieved immediately by the ingestion of sugar. So I wonder if there are some cases in which, according to laboratory methods, we have normal blood sugars that are relatively below normal for a particular individual.

Dr. Markowitz: I have not found any case just such as Dr. Sutton refers to, but we have found frequently where the laboratory report will not fit definitely with the clinical findings.

I have no definite explanation for the findings in the case referred to except the possibility that giving insulin is an attempt to produce artificially what the body does naturally and we are unable to gauge the amount of insulin needed as well as the body does.

There is also this hypothesis—that in some of these cases the time element between the time when they need sugar or insulin and the time it is given to them may make this difference in the blood sugar findings. That is, the normal levels are not constant and may change according to this time element.

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## THE VALUE OF ROENTGENOLOGY IN URINARY DISORDERS OF INFANCY AND CHILDHOOD

JOHN R. VONACHEN, M. D.

PEORIA, ILL.

Pyuria is a common occurrence in infancy and childhood. The type occurring after acute infections disappears after the infection subsides, but the pediatrician and general practitioner see many cases of chronic or recurring pyuria which require team work between the urologist, radiologist, and the pediatrician.

Hunner was a real pioneer in the investigation of these cases, and attributed chronic pyuria to a stasis somewhere in the urinary tract. This may be due to either congenital anomalies or to obstructions from other causes.

As an illustration, I will show a few lantern slides, which are part of a series of about 165 cases, and I want to extend my thanks to both Drs. Arthur Sprenger, and Dr. P. Goodwin of Peoria, who have done the urological and roentgenological work on these cases.

Any case with a definite history of positive urinary findings extending over a period of time or bacteriologic findings indicating recurrence of

infection calls for immediate cystoscopic investigation with pyelograms.

According to Summerfield and associates<sup>1</sup> no definite information has been found to establish satisfactorily the route of infection in these urinary cases.

Infants and children with pyuria are brought to the physician usually because they are quite ill. Some seek aid because of local urinary symptoms or evidence of abdominal tumor masses. The correct diagnosis cannot be made by the usual examination of the urine. Bigler<sup>2</sup> sums up the proper investigation of these cases by stating that acute cases of pyuria should be treated medically for 2 or 3 weeks. If the infection still persists or the physical examination points towards an obstructive lesion such as hydronephrosis, bladder neck obstruction etc. then examination by a competent urologist with the cooperation of a properly equipped roentgenologist should be made. I say competent urologist because not every urologist is properly equipped to do satisfactory cystoscopic work or make reliable pyelograms in infants and children.

Allow me to take enough time to say that intravenous urography in children in our hands has not been trustworthy. The argument for its use by Teall<sup>3</sup> is that it can be used without upsetting the patient but it does not always completely visualize the urinary tract. He also states that "unfortunately the abnormalities in the cases of chronic pyuria are almost always in the upper portion of the urinary tract and while occasionally one can demonstrate hydroureter and hydronephrosis by cystographic method, it is not possible as a general rule." This does not coincide with our experience.

Retrograde pyelography has been very successful in our hands and has been unattended by discomfort and ill after-effects. Again in favor of cystoscopy and pyelography is that while the patient is on the table, if necessary, retention ureteral catheters and other necessary surgical procedures can be instituted immediately.

Morse<sup>4</sup> states "that in a disease so seldom fatal it is hardly necessary to consider ureteral catheterization except in obstinate and serious cases" yet I believe that many urologic manifestations in adults are possibly due to urinary tract anomalies which could have been averted by proper treatment during infancy and childhood.

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It is well known that chronic pyuria persists because of urinary stasis. Stasis is maintained usually by obstructions along the urinary tract and in children these are usually congenital anomalies. Complete urological examination was carried out according to the procedure as advised by Meredith Campbell.<sup>5</sup> Preliminary to cystoscopic examination the following data are obtained: urinalysis—if necessary blood chemistry, two hour phenolsulphonephthalein output, then a plain roentgenogram of the urinary tract. If necessary ureteral catheterization and pyelograms. We usually use 12% sodium iodide as the radiopaque media. While bilateral pyelography has its attendant dangers this procedure is usually carried out unless the renal function is not good.

Congenital valves of the posterior urethra when distended appear similar to cardiac cusps and may cause marked urinary obstruction. Disturbances of urination, upper tract dilatation and renal back-pressure destruction result. Congenital contracture of the bladder neck may be due to connective tissue increase in the submucosa or to muscular hypertrophy of the sphincteric ring of the vesicle outlet. The symptoms and pathologic changes in the upper tract are identical to those caused by posterior urethral valves. Residual urine is usually present. The urograms show marked bilateral dilatation of the upper urinary channels, without filling of the posterior urethra. Bladder diverticulum may be congenital or acquired. The lesion is most often found in the region of the trigone. Congenital neuromuscular disease, involving chiefly the bladder outlet, are usually examined because of chronic pyuria or enuresis. The lesion is usually a sphincterospasm of the bladder outlet; the obstruction in the upper urinary tract. Occasionally the lesion is secondary to spinal deformity, especially spina bifida. Sometimes the vesical lesion is of the paralytic type. Congenital ureteral strictures occur in about one per cent. of all individuals, being most common at the ureterovesical or ureteropelvic junctions but may exist elsewhere and can be multiple as well as bilateral. Often the stricture is merely an atresia without connective tissue increase. Sometimes one finds superimposed inflammation.

Renal reduplication is always associated with ureteral reduplication; each kidney pelvis has

its own ureter stalk. These stalks may fuse before entering the bladder.

The urographic diagnosis of renal tumor in infants is seldom difficult. Pelvic distortion, displacement, elongation or obliteration are commonly observed.

Anomalies occur in the urinary tract more often than elsewhere. For this reason an anomalous condition in another body system strongly suggests the likelihood of an associated urogenital anomaly.

#### SUMMARY

In infants and children, anomalies of the urinary tract are commonly the etiologic factor when persistent infection exists.

Diagnosis of chronic pyuria with resultant correction of the underlying pathology can be accomplished by cooperation of the pediatrician or general practitioner with a competent urologist and roentgenologist because by urography only can abnormalities be demonstrated and diagnosed.

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#### DISCUSSION

Dr. R. E. Cumming, Chicago, Ill: I believe that Dr. Vonachen's presentation of 160 cases of chronic pyuria that he has treated along the lines mentioned confirms pretty thoroughly in our minds the importance of looking a little farther than we have in the past in the treatment of pyelitis. He has presented a number of cases which show a combination of pathological changes and congenital defects, congenital anomalies.

We all have children that we treat over a period of time. They seem to get well, only to flare up again after a few weeks. We may attribute it to a new infection, or we may simply call it a recurrence.

I believe that a great many of these cases are cases that would fit into the group that the Doctor has described here this morning and should be cystoscoped and treated along those lines. I have had very few cases that I have treated this way, but I believe I am going to treat a great many more of them along these lines.

I do know that the procedure is not a shock to the individual. The Doctor brought that point out. It must be done in the hands of a good urologist, and in such hands the patient does not suffer at the time.

I should like to ask the Doctor, while I think of it, out of the number of cases he has discussed here this,



morning has he had any reactions in those infectious cases rather than those that were due to congenital defects? In other words, in a patient who develops a pyelitis that drags on for several weeks following an upper respiratory infection, is there any more hazard in cystoscopy that patient, due to any extension that might develop or to a flare-up of symptoms, over and above that patient whose symptoms are due to congenital defects?

I believe that Dr. Vonachen has had an unusual experience in presenting this many cases. I heard the Doctor talk on this subject before, when he had not completed this large number. I believe that his work is certainly gratifying and should be very educational to us this morning. The question of pyelitis has been one of alkalinizing the urine. A few years ago we used bacteriophage. There has been a great swing of the pendulum of thought as to just how to treat these cases.

I think that the very latest and most modern trend, especially of those cases that are chronic, is along the lines that Dr. Vonachen has mentioned.

I certainly have enjoyed his paper, and I know that the work involved in presenting this number of plates has been extensive. I again want to thank Dr. Vonachen.

Dr. L. M. Hilt, Springfield, Ill.: When one has done the number of cases that have been reported here, it seems rather out of place to question the procedure, but I was taught that bilateral urography was dangerous. The Doctor mentioned at the last that he took the kidney function. In the case of the kidney that was ruptured, there was also a bilateral pyelogram. I think that some urologists would question as to that procedure.

Most of the cases shown were hydronephrosis. In the so-called intravenous and oral methods of urography, hydronephrosis is the most easily obtained, usually is better obtained than with the retrograde methods. Another thing about the oral method is the use of hippurin or sodium iodid. Swick gave as much as 10 grams to a one-year old child without any bad results, and the usual dose of an adult is 12 to 15 grams. It is pleasant to take and there are no reactions.

In doing this retrograde pyelography, the question comes up as to how much to put in. How do you know? We all know that the urologist tells the patient, "Tell me when it hurts." There are other methods outlined, but it is the old thing of saying one thing and doing another. Practically all say, "When does it hurt?" and that is when they stop. They do not use the gravity method. They use a syringe, or at least those that I have seen have done so.

I am just wondering how do you know in a child that you have to anesthetize, when it hurts, or in a child that is probably crying, how can you tell when there is pain? What is the danger of getting too much in?

In regard to the one per cent. ureteral strictures, I should like to know whether that has been confirmed by autopsy or by other methods, such as pyelography.

A great many men say that they think they are very rare, and that is one of the beliefs that I have held.

Another advantage of the intravenous or oral method is this: If a positive shadow is obtained, we get a very good idea of the function of that kidney. It also, as I said before, eliminates the necessity of an anesthetic in children.

Dr. Harry Olin, Chicago, Ill.: In going over the literature, I was very much impressed, in the traumatic kidney cases, that the method first instituted is the intravenous and not the cystoscopic.

I was wondering if the element of infection and greater amount of sepsis is added if the retrograde pyelography is made on these particular cases, because, from the literature, I obtain the opinion that most men prefer to do the intravenous and, if that does not give the necessary information, then they do the cystoscopic examination.

Dr. John R. Vonachen, Peoria, Ill. (Closing): In answer to the Doctor's question first, in the case that I showed you, of traumatic kidney, as a pediatrician I do not want to pass the buck, but by the time I saw this case he had already been cystoscoped. I would rather have the urologist answer that question definitely.

However, I will say that in this particular case, with the work that was done, there was seemingly no harm because after the removal of the traumatized kidney the child made a very good recovery.

As to the procedure to follow in these cases of traumatized kidneys routinely, I think probably the urologist would be more competent to answer that than I would.

Dr. Cummings asked about the reactions following the cases of acute pyelitis which had been going on for some weeks, and the hazard in regard to anesthetics and also cystoscopic work in those cases. I do not recall where we have ever had any trouble or any definite reactions either due to the anesthetic or due to the pyelography, and we have worked on a lot of these babies with high temperatures. We have never been able to convince ourselves that there has been any harm done by the manipulation.

Dr. Cumming mentioned the fact that we had a considerable number of cases. I do not believe that is because I have seen more cases than probably anyone else. It is because I have been fortunate enough to have a urologist and radiologist to whom I can take these cases the minute I see them, which probably gives me an advantage as far as this work is concerned. But I do not believe I am seeing any more of these cases, probably, than the average pediatrician.

In regard to Dr. Hilt's question on bilateral pyelography, I have discussed this with Dr. Sprenger, and I have also read Meredith Campbell's dissertation on bilateral pyelography. I think Meredith Campbell of New York has probably done more work of this type on children than any man in the country. While he says that it is attended with some danger, at the same time he says he never holds back as far as its use is concerned, particularly if he is fairly well convinced that he has good functioning kidneys, which he determines by the phenolsulphonthalein output. I know

that Dr. Sprenger, who has done my work, ordinarily does not hesitate to do a bilateral pyelography. I think Dr. Goodwin will bear me out in that. In these children that we worked with, he universally injects both sides. Have not you found that to be the case?

Dr. Goodwin: Yes, sir.

Dr. Vonachen: As far as the intravenous urography is concerned, we feel this way about it: If it does visualize that tract, it is all right. If you do not get visualization of the tract, you are not certain, because I do not believe that you can depend absolutely upon it. I am not speaking about adults, I am speaking about children. I can only speak regarding the cases that we have used it on. Under ordinary circumstances we do not resort to it, because the other works out so much better. If we have to put indwelling catheters in afterwards, it can be done.

I want to thank the discussants of this paper. I hope I have at least brought home one point, and that is that in chronic pyurias the cases should not be treated medically, but the practitioner should consult with the urologist and the roentgenologist so as to make a proper diagnosis.

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## THE VALUE OF SYMPTOMS

RICHARD F. HERNDON, M. D.

SPRINGFIELD, ILL.

Although the accuracy of diagnosis has improved in recent years, it has become more difficult. Moreover, it is different. It is no longer sufficient to attach a name to a disease or condition, we are expected to know what that name implies. We are expected to know the etiologic agents and the mechanism of their action and to understand the altered physiology as well as the altered anatomy. This knowledge depends upon an intimate acquaintance with an appalling number of facts concerning disease and with the rationale and technic of many laboratory and instrumental procedures. As a result diagnosis is no longer a one-man job.

However, the final clinical appraisalment of disease is an individual matter. A group diagnosis may be perfect in all its parts statistically, physically, chemically and quantitatively, but it may be a misfit if there is lacking the proper estimation of the value of details. For instance, a patient was recently referred to me after an examination in one of our large metropolitan hospitals. She had a list of nine separate disorders varying from apical abscesses through hypothyroidism to lamblia infestation. Further

historical and observational study showed these to be but minor parts of a manic depressive psychosis. This fitting of the diagnosis can only be accomplished by personal contact between the physician and the patient and the proper interpretation of symptoms. I do not mean to detract from the value of physical diagnosis or from the information derived from serology, x-ray, metabolic rate, electrocardiograph or other instrument of precision. These things have come to stay and must be accepted and used. I merely wish to stress the value of the purely subjective phenomena of disease which in our hurry and bustle are often sadly neglected. Herrick<sup>1</sup> once rated the value of the history as 50 per cent. of the diagnosis. Too often the doctor is content with obtaining just enough information to suggest which part of the body should be x-rayed. And so, on the score of practical utility alone, I will attempt to interest you in a subject that may seem to be but an elementary part of the daily task of medicine.

Without symptoms patients would not come to us. They are the expressions of disturbances in function or altered physiology and are the first evidence to the individual of existing disease. As a rule, they precede the development of signs which are the outward morbid anatomy of the living. The only exceptions are in those fortunate cases where disease is found by objective examination when the motive is to get insurance or to keep well. Even in serious forms of organic disease symptoms are not only earlier but more eloquent than signs, for the latter depend on advanced structural change. Although symptoms are often caused by organic disease, they do not express the disease but the disturbance in function which the disease produces. The same symptoms may thus be produced by functional error or structural flaw. The proper question to ask ourselves then is, "What does this symptom mean?" not "What is it a symptom of?" While not specific for diseases, symptoms are, nevertheless, specific for functional errors and these errors, for the most part, depend upon an exaggeration, a depression or an inhibition of normal reflex phenomena. The dyspnea of great effort in health is physiologically similar to the dyspnea of small effort in heart disease. The angina of anemia has the same physiological basis as the angina of coronary sclerosis, although usually

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none of its gravity. Giddiness may be due to cerebellar disease, to slight organic changes in the labyrinth or to transient circulatory effects. It is by the character, severity, behavior and associations of the symptom that we differentiate.

If we pause for a moment to think of such familiar symptoms as pain and dyspnea we realize at once that, while our intimate knowledge is slight, we can already classify them into several varieties of pain and dyspnea and that in certain instances a particular variety has a very special significance. When it has a special clinical significance it also has a special physiological significance, and the actual mechanism of the pain or the chemistry of the breathlessness in such a case has commonly been proved. In time it should be possible to sift and classify and analyze all the subjective phenomena of disease in the same way, and the meaning of nausea, heart burn, anorexia, the various forms of breathlessness and vertigo, the various headaches, backaches, heart aches and stomach aches, the referred pains, the dysurias and dysmenorrheas, the tinglings and numbnesses, the fidgets and the spots before the eyes, will then be made more clear to us. It can scarcely be disputed that diagnosis, prognosis and treatment will greatly benefit thereby.

Symptoms are usually protective in function. They emphasize the fundamental sensitivity of body tissues to trauma whether physical, chemical or infectious and so force the organism into some sort of protective reaction. Dyspnea demands rest for a local or general advantage. Pain in an injured limb demands immobility and so permits repair. The pain of angina demands rest and so spares a heart in jeopardy. The sensation of pins and needles in a cramped limb wakes us from sleep and so compels us to restore circulation by movement and friction. The exaggerated hunger tonus of peptic ulcer calls for food relief with temporary mechanical and chemical rest for the ulcer. It is true that the warning is not always direct in its reference. Pain may be referred to areas remote from the seat of the trouble. A tuberculous lesion in the lung may give rise only to feelings of malaise. The protective significance of many other symptoms is obscure, but for the most part they are symptoms whose nature remains at present undetermined.

Besides this lack of knowledge on our part

there are other difficulties in the way of precise interpretation of symptoms. For example, it is almost impossible for some individuals to describe their discomforts in a way which will convey exact information. Others seem unable to give a direct answer to a direct question. Some have been so busy with their own interpretations that they are surprised when asked what they mean by "indigestion." Often their descriptions are colored by preconceived ideas of what the symptoms of their trouble should be. Nevertheless, patience, perseverance, tact and training in the art of cross examination will usually overcome these barriers.

The trend today is toward preventive medicine, or, failing in that, toward the discovery of disease in its infancy and comparative innocence. This being so, symptoms must occupy an increasingly important place in the examination. Generally, discomforts appear before it would be possible by objective examination to tell that anything is wrong. For example, there is the vague malaise of the incubation period of infectious diseases. The pain of chronic arthritis has been present for some time before one can find a joint lesion. Pleurisy pain is often felt before there is objective evidence of pleurisy. Paul White<sup>2</sup> says that nearly one-fourth of all cases of angina pectoris show an apparently normal heart by all methods of examination—inspection, palpation, percussion, auscultation, blood pressure, roentgen ray examination and electrocardiography. In all probability the gastro-intestinal discomforts of peptic ulcer and, occasionally of gastric cancer, exist before a diagnosis could be made by objective investigation. To carry the matter further one needs only to take a single case of known disease in an intelligent person and test the evolution of the symptoms from their first appearance. Would it have been possible to find objective evidence of disease when symptoms first occurred? The answer in most cases would be "No."

An important point in the assessment of the subjective phenomena of disease is to determine as early as possible whether the patient is hypersensitive or relatively calm and phlegmatic. It is well known that it takes less pathology to cause symptoms in a person who is sensitive than in one who is lethargic or placid. What anatomical or physiological changes in the nervous system are responsible for such variations we do not

know. While there have been several objective methods devised to test this point, the most valuable information can be obtained from purely historical and personal studies. Personal impressions count for much. At times it is more important to note how a person tells his story than what he tells. But no matter how definite we admit these fundamental differences in personal sensitivity to be we must not forget that fatigue, general debility, anemia, anxiety and so on may lower the nervous threshold sufficiently to permit psychic impositions upon organic disease.

Finally in addition to diagnosis there are two equally important branches of medicine in which the evaluation of the subjective phenomena of disease plays an all important part. These are prognosis and treatment. Mackenzie<sup>3</sup> has defined prognosis "as the judgment of the significance of symptoms as indicating the future course of the patient's complaint." Such knowledge is absolutely essential to the intelligent practice of medicine and concerns every one who has to deal with the sick. While Mackenzie used the term symptom in a broader sense than I am using it here it is obvious that without an understanding of the significance of the patient's story prognosis is well nigh impossible. In regard to treatment it may be said that, while progress has given to medicine some of the exactness of physics and chemistry, most of our therapeutics are still empiric and that the vast majority of remedies when they have any effect act by modifying the symptoms of disease.

In conclusion I wish to state that I believe there is no more valuable or neglected factor in present-day medicine than the subjective phenomena of disease. There is certainly no subject that we have a better opportunity to study, for we literally live in the midst of symptoms.

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## BONE METASTASES FROM MALIGNANCY OF THE PROSTATE—A ROENTGEN STUDY OF THE VARIOUS TYPES

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CHICAGO

Bone metastasis from malignancy of the prostate is a relatively common complication which may occur at any time in the course of the disease. Sacral and sciatic pains, pain over any portion of the vertebrae comparable to symptoms referable to urinary obstruction, deserve as much attention for investigation as definite pathognomonic findings in the degree of hardness of the prostate from a rectal examination. If symptoms of urinary obstruction predominate, removal of the prostate will afford the patient relief, whether the obstruction is due to an enlarged gland caused by hypertrophy, or malignant neoplasm. For the immediate needs of the patient this procedure so far suffices, but the clinician as well as the urologist must bear in mind that postoperative study merits his consideration, equally as important as the preoperative care of his patient. Any stage and any method of examination to be complete must include a Roentgen study of the genito-urinary tract, otherwise hidden bone metastases might fail to be recognized, or a prostate may be removed with metastases already present. Frequently men past fifty are treated for pain masquerading as arthritis of the dorsal or lumbar spine, sciatica or lumbago, with no local symptomatology present or even any enlargement of the prostate, when the true underlying condition is bone metastases from malignancy of the prostate. In 30% of cases of carcinoma of the prostate, metastases are already present when the case first comes for medical aid.<sup>1</sup> In hypertrophy of the prostate, carcinoma is of rather frequent occurrence, some pathologists claim involving as high as 10 to 20% of carefully examined specimens in certain series. In Young's Clinic, cancer of the prostate forms 5% of all total admissions and over 20% of all cases subject to urinary obstruction. Since it is likewise well known that 50% of cases of hypertrophy of the prostate is associated with malignancy, and that in fully one-half of the cases no adenomatous enlarge-

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ment is present, these facts undoubtedly add to the difficulties of diagnosis. As 70% of all cases of prostatic hypertrophy occur between the ages of fifty and seventy-five, recognition of malignancy becomes a very important matter in this group of men, and the routine Roentgen examination of the lumbar spine and pelvis must be included simply to rule out bone metastasis if nothing else. As a rule, a simple flat plate of the genito-urinary tract will elicit all necessary information relative to the lumbar spine, pelvis, immediate hip joints, or shadows of calculi, enlarged kidneys, etc. If pain is experienced beyond these areas, further x-ray studies should be made of the painful regions, since bone metastasis occasionally is found in areas other than the lumbar spine and pelvis. Even the presence of benign hypertrophy, shown by rectal or cystoscopic examination, in no way excludes the presence of carcinoma, as pointed out so forcibly by Young. The same author in a series of nearly 2,000 prostatectomies in which 250 cases of carcinoma of the prostate were carefully studied, and in which microscopical sections were available, found 25 cases in which the diagnosis was missed or doubtful. In 19 of the 25 cases, no suspicion of malignancy was even entertained. Malignant transformation of adenoma must therefore occur more often than is suspected.<sup>2</sup> At the present time there is no definite known method in the follow up system in postoperative cases for removal of the prostate for benign hypertrophy which will exactly determine the number of cases which develop bone metastases. Various articles in the literature occasionally allude to this subsequent complication of bone metastases, but so far as can be learned, the estimated percentage of those developing bone metastases is unknown.<sup>3, 4</sup>

Young claims that fifty per cent of carcinoma is associated with hypertrophy of the median and lateral lobes. In most of these cases, the two diseases are distinct, the carcinoma occupying the subcapsular posterior lobe, and the hypertrophy, the periurethral portions of the lateral lobes and the median lobe. The same author states that in over 2,500 cases of benign hypertrophy, only one was found in which carcinoma was discovered solely within the encapsulated adenomatous lobe. Dakin,<sup>5</sup> writing of complications of prostatectomy, does not mention any references to recurrence either of benign hypertrophy, ade-

noma, or malignancy, the latter not rare by any means, and always to be borne in mind in the follow up consideration of every prostatectomy. Widmann, in the treatment of 152 cases of an extremely advanced type of carcinoma of the prostate with radium and x-ray, found bone metastases in 40%; hospital care was necessary in 82% when first seen.<sup>6</sup> From the foregoing, it may be appreciated how difficult at times it is to make a definite diagnosis, and how commonly bone metastases follow any particular type of treatment. It is almost a law among roentgenologists that when bone metastases are discovered accidentally on the x-ray plate, always to suspect primary carcinoma of the prostate. In fact, the brunt of x-ray evidence indicates true osseous involvement, and not to extension from regional lymph node metastases.

Since sarcomata comprise about 1 to 2% of all malignant prostatic tumors, they will merit just a few words. Regional lymphatic metastasis is stated to be rare, and the predilection for bone as a rule does not occur. Metastasis is undoubtedly by blood stream, and involves the internal organs as a general rule, the lungs often being involved.

*Methods of Invasion.* Metastasis by blood stream is more common than by lymphatics. Young has quoted Pauchette who discovered strands of carcinoma cells within the small blood vessels in the prostate. In the lymphatics of the prostate, it is believed that metastasis from carcinoma first occurs along channels drained by the prostatic chain of nodes. Since most of the glands are deeply seated, excepting the perivesicular nodes, investigation is not able to determine when metastasis first begins. As Young so eloquently states, "We therefore remain in ignorance until palpable masses develop, nerves are pressed upon, and bones are invaded."

Lymph or bony metastases may develop and give the first symptoms of prostatic carcinoma in the form of pain or even a pathological fracture of a long bone, urinary obstruction being absent. The writer has in mind several cases in which pain was the predominating symptom that the patient experienced. A lawyer sixty-seven years old was perfectly well nine months prior to his admission to Woodlawn Hospital. He complained of pains in his back over the mid-dorsal region, although for a number of years he had been troubled with attacks of "lumbago." A neighboring

hospital six months previously had given him a series of x-ray treatments for metastases of his third and fourth dorsal vertebrae, a diagnosis being then made of inoperable carcinoma of the prostate with bone metastases. No urinary symptoms were present, although his prostate was as large as a medium sized orange, with much induration of the posterior lobe. The second case was that of a man sixty-five years old, who complained of vague pains over his back and abdomen three months prior to his admission to the hospital. X-ray examination of his thoracic and lumbar spine and pelvis disclosed bone metastases to his pelvis and sacrum. His prostate appeared normal in size and shape, with absent urinary findings. Since his discharge from the hospital he has been confined to bed with increasing weakness of his lower extremities. Metastases have evidently involved his lumbar spine, with extension to the spinal cord, destructive and proliferative processes going on at the same time. In a study of 23 cases of carcinoma of the prostate which came to autopsy in the years of 1929-1932 inclusive at Cook County Hospital, one case showed metastases to the cervical, thoracic and lumbar spinal cord. The third case is that of a man seventy-four years old, who had symptoms of urinary obstruction of three years duration. He had a suprapubic prostatectomy performed ten years previously with freedom of symptoms up to three years ago, when he experienced difficulty in starting his stream. Returning to his surgeon, he was told that he had a stricture of his urethra, a postoperative sequel following his suprapubic prostatectomy. Occasionally he has had to resort to a catheter for relief. Several weeks ago, prior to admission, he awoke from pain one morning to find a sinus leaking urine, breaking through his suprapubic scar, and several hard lumps in the inguinal regions. His prostate on palpation revealed not only enlargement, but stony hardness, pathognomonic of carcinoma. X-ray studies of his lumbar spine and pelvis will soon be made to determine bone metastases.

Visceral metastases from prostatic carcinoma may be considered rare in that it is a departure from the usual cycle of secondary tumor formation. Kirshbaum, in a study of 4,860 consecutive autopsies at Cook County Hospital, found five cases of metastases to the ureters, the material coming from 622 tumors. Two cases of the me-

tastases to the ureters had the primary tumor in the prostate. In addition there were metastases to the bladder, seminal vesicles, vasa deferentia, right kidney, lungs, vertebrae and lymph nodes.<sup>7</sup> Similar metastases including that to lungs and kidneys have been reported by Giordano and Bumpus in 1922,<sup>8</sup> and W. J. Carson in 1925 and 1927.<sup>9, 10</sup> To the list may be added an adenocarcinoma of the prostate reported by MacKenzie and Ratner in 1932, who noted metastases to the lungs, pleura, both ureters and lymph nodes.<sup>11</sup> From a study of these cases, it appears that when visceral metastasis does occur, invasion of the bones is absent and vice versa, where osseous metastasis is present, the viscera are rarely attacked. This may be considered a general rule, although Kirshbaum in one of his cases of visceral metastases from prostatic carcinoma noted involvement of the skull, a rather rare finding.

*Symptomatology.* A history of pains in the back and legs, or so-called sciatica in men past forty should make one suspicious, and x-ray examination of the bones may be helpful. Symptoms of urinary obstruction however, bring the patient to his physician, and the clinical picture varies little whether the prostatic obstruction is due to benign hypertrophy or carcinoma. In all events, a rectal examination should be done in all cases. The value of a flat plate of the genitourinary tract has been emphasized. Carcinoma of the prostate may exist without symptoms, and may at times be associated with benign hypertrophy. Occasionally a bone tumor or a spontaneous fracture may be the first sign of carcinoma of the prostate. Young believes that benign hypertrophy complicating early carcinoma may be responsible for all obstructive symptoms, while uncomplicated carcinoma usually does not cause obstruction until a rather late stage. The following table (from Young's Practice of Urology) shows the leading symptoms on admission in 1,309 cases:

Symptoms on admission	Cases	Per cent.
Frequency .....	215	92
Loss of force.....	173	72
Difficulty .....	165	69
Hesitancy .....	158	66
Diminution of size of stream.....	147	61
Dysuria .....	168	72
Pain .....	96	40
Urgency .....	78	33
Catheter required occasionally.....	46	19
Catheter required daily.....	30	12.6
Hemorrhage .....	28	11.7
Impassable obstruction .....	5	2.1
Total.....	1309	



How long a period of time elapses between the appearance of prostatic carcinoma and bone metastasis is not too well known. Downs and Hastings in a study of twenty cases of malignant tumors involving bone metastasis found two cases of prostatic carcinoma, one with destructive bone metastasis nine months later, and the second, sclerosing metastasis one year and three months later. In one of the author's cases reported, bone metastasis (isolated sclerosing lesions) occurred six years after removal of the prostate for benign hypertrophy.<sup>12</sup>

*Pathological Classification.* From the roentgenologic point of view, three types are well recognized and are described in the usual text-books of urologic surgery and bone tumor pathology. For simplicity of classification, metastatic types may be divided as follows:

1. Osteoplastic
2. Osteoclastic
3. Combined proliferative and destructive lesions
4. Multiple, small, isolated lesions

The fourth classification is the additional type, consisting primarily of single, isolated, proliferative tumors, small in size, distributed indiscriminately through the pelvis, sacrum and bodies and adjacent portions of the lumbar vertebrae.

Metastasis from carcinoma of the prostate is similar to carcinoma of bone as that following breast or gastric cancer, but in the preponderance of cases it is usually of slow growth and proliferative in type. This is also due to the fact that the cancer cell in the lumbar vertebra or pelvis acts as a stimulating agent, whereas in the breast or gastric cancer, bone metastasis usually strikes the ribs or long bones as the femur and, because of a blood stream invasion, entrance is made through the nutrient canal where, because of the rapid growth of the tumor, no bone production is formed, since there is no new bone reaction external to it.

*Frequency and Distribution of Metastases.* The fifth lumbar vertebra appears to be the predilected site for the earliest metastatic focus. Here, by its slow growth, the metastatic tumor cell acts as a stimulating agent and bone proliferation is the rule, the body of the lumbar spine or in the region of the articular facets showing a very dense, irregular shadow—a nodule varying in size from that of a pea or larger. Gradually the metastases spread to the other lumbar vertebrae and meanwhile the pelvis is likewise involved.

These proliferative metastases may be of so slow a growth that they may exist for some years, giving rise to few or no symptoms whatever.

Prostatic carcinoma commonly gives rise to metastases in the bones of the spine and pelvis, although other parts of the body may be involved and to a lesser extent, the glands and viscera. According to Young and other observers, enlarged glands have been detected on rectal examination in 20% of cases. Blumer is of the opinion that two-thirds of the cases of prostatic carcinoma which run an unobstructive course ultimately give rise to bone metastases.<sup>13</sup> Kaufman on the same problem found in a series of twenty-two cases of prostatic carcinoma in which the bones were examined completely at autopsy, 16 who had bone metastases, a percentage of 72.<sup>14</sup> It is interesting to compare the relatively high percentage of bone metastases in prostatic carcinoma with secondary tumors of breast cancer, which yield a figure of 14%, with thyroid carcinoma which show a percentage of 25, and hypernephroma which attain a mark of 50. To quote Ewing, "Similar osteoplastic processes are observed, especially with mammary carcinoma and with tumors of the stomach, gall bladder, thyroid, etc., but the early and frequent occurrence and extensive distribution belong chiefly to prostatic disease."<sup>15</sup> Simpson has found bone metastasis in prostatic carcinoma equal to the combined number of cases of osseous metastases in the three above mentioned types. Bone metastasis by x-ray in 135 prostate cases of cancer showed a percentage of 30.3.<sup>16</sup>

In another series of 228 prostate cancer patients, Bumpus demonstrated by Roentgen ray a percentage of 30.26 to have bone involvement. Analyzing the regions commonly attacked by secondary cancer tumors, the same author found in 153 pelvic films, 46 as having bone metastases (30%); in 154 spinal films, 40 were interpreted as bone metastases (25.97%); of 140 lung films examined, 8 or 6.4% revealed characteristic bone metastasis; of 141 rib films 8 or 5% gave evidence of secondary growths.<sup>17</sup> Since bone involvement is the common finding in metastasis, the blood stream is the more frequent method of extension of metastasis than by the lymphatics, hence glandular involvement, when it does occur, is late in the disease. The liver is rarely the seat of metastases.

Late in the disease the metastatic process becomes so extensive that it may resemble Paget's disease. This is strikingly shown in a recent case wherein a dentist of 52, an old Paget's, fractured his hip joint in an automobile accident and it was at first thought that associated with the fracture was bone metastasis due to prostatic malignancy. However, on thorough examination and making plates of the skull, Paget's disease was unmistakably found. The prostate in this case was small with no evidence of induration.

Simpson has reported diffuse vertebral metastases occurring in the lymphatic chain of glands over the lumbar vertebrae without gross bony changes. He reports a case of a man, aged 69, with carcinoma of the prostate which, on rectal examination showed a prostate three times its normal size, firm, showing a smooth outline, and causing urethral obstruction, diagnosed as carcinoma of the prostate. X-ray examination was negative as far as metastatic bone involvement was concerned in the lumbar spine or pelvis. At autopsy a secondary, soft, grayish tumor mass, 8.0 x 4.0 x 2.0 cm. in thickness was found overlying the bodies of the third and fourth lumbar vertebrae which, upon pressure of the cut surface, exuded an abundant milky "cancer juice." The mass was adherent to the vertebrae on the left side, but the vertebral cortex was smooth and presented no gross evidence of infiltration with neoplasm. The prostate was replaced by medullary new growth and the capsule adherent to all surrounding structures. Microscopical examination of the tissues showed all glands replaced practically by metastases. In the bones of the vertebrae there was diffuse carcinomatous infiltration, essentially replacing the marrow in all areas examined. No destruction of trabeculae or bone absorption was present, and there was no evidence of bone production. Evidently if this patient had lived longer, the x-ray would undoubtedly have revealed extensive metastatic changes in his lumbar spine and pelvis.<sup>18</sup>

*Osteoplastic Type.* No bone deformity exists in the osteoplastic type; on gross examination the metastatic areas are firm and white with no bone destruction. Histologically the involved areas show many large, new bone trabeculae surrounding nests of columnar cell carcinoma as originally seen in the primary tumor. There are spicules of old bone undergoing slow absorption, intermingled with these islands of new bone. Von Reck-

linghausen offered the first satisfactory description of this proliferative type of bone metastases so common in the greatest number of prostatic carcinoma; in fact, in 1891 he presented five cases of prostatic, primary carcinoma exhibiting these characteristics.<sup>19</sup>

In the osteoplastic type the lesion in bone for the most part is a condensation process with actual deposition of new bone showing, in the roentgenogram, areas of bone much more dense than the surrounding normal bone. These islands of increased density vary in size and at times become markedly confluent, the involved areas casting extremely dense shadows.

*Osteoclastic Type.* In the osteoclastic type there is invasion by the metastatic tumor mass into the normal bone which it destroys as it grows, producing areas of rarefaction with essentially no new bone production since the cancer cells grow so rapidly. The involved areas appear as dark, irregular areas showing loss of bone substance with trabeculation absent or appearing as fine, linear lines of increased density in an area of bone destruction. Purely bone destruction per se is seldom found in all involved areas without some evidence of proliferation associated with some of the destroyed areas; as a rule the purely destructive process is only found in the minority of cases.

Stewart is of the opinion that the character of the primary cancer growth in the prostate can be revealed by the roentgenologic appearance of bone metastases. If, in the primary tumor, the stroma predominates, then the scirrhus form of carcinoma will give rise to the proliferative or osteoplastic type of bone metastasis. If, on the other hand, the primary tumor shows a preponderance of medullary cell growth, then the osseous metastasis will be of the destructive or osteoclastic type.<sup>20</sup>

At Ann Arbor, University of Michigan Laboratory, for a period of five years, 1921-1926, 274 surgically removed prostates were examined, 44 of which were primary carcinoma, an incidence of 16% or roughly one cancer to every six of the benign hypertrophic type. Simpson believes these figures are low, since many carcinoma cases were refused operation, and undoubtedly the percentage is much higher. Of the 44 carcinomata, 32, he says, were frankly scirrhus, a percentage of 72, while the remaining 12, although chiefly medullary in type, pre-



sented frequently areas of scirrhus architecture, accounting for the mixed types of osseous metastases on the roentgenogram.<sup>18</sup>

*Solitary Nodular Type.* Another type is represented by multiple, small osteoplastic lesions consisting primarily of numerous foci or islands of bone condensation, circular areas of increased density or white spots on the x-ray plate, varying in size from the head of a pin to a ten cent piece and larger. These areas may be so numerous as to almost "pepper" the entire bone architecture. One must not confuse round, dense areas about one cm. in diameter frequently seen on films of the lumbar spine and pelvis, which are either calcified lymph nodes or small elevations of bone sometimes present over the head of the femur, and occasionally seen in either wing of the ilium; when they occur with irregular distribution over the lumbar vertebrae, pelvis and hip joints, they are invariably metastatic foci with the primary growth usually in the prostate.

*Metastasis From Malignancy Without Osseous Secondary Growths.* This phenomenon sometimes occurs as mentioned in a description of a case reported by Simpson, previously referred to; microscopical osseous metastases were discovered, but to the x-ray and outward gross appearances, the bone revealed no evidence of secondary new growth.<sup>18</sup>

*Aids to the Pathologist.* It is obvious from the foregoing facts that since bone metastasis is relatively so common in prostatic carcinoma that we as investigators should attempt to determine in addition, the relative frequency of malignancy in cases other than carcinoma. Since malignant transformation occurs in prostatic pathology, it is recommended that in all post mortem examinations wherein there has been a history of prostatectomy or where there is obvious palpable pathology, especially applicable in men over forty, routine roentgenograms be made of the lumbar spine and pelvis. The roentgenologist can be of much invaluable assistance to the pathologist, not only to determine hidden bone pathology, but to complete his records for the complications of disease and also incidental findings—significant changes which undoubtedly are unrecorded in the average post mortem examination in leading hospitals and medical universities. For instance, at Cook County Hospital for the years 1929 to 1932 inclusive, twenty-three cases of carcinoma of the prostate came to post mortem examination

in which the pathologist reported only three cases as having bone metastases. Roentgenograms were made only in three cases and these showed bone metastasis. If the pathologist had routine plates made, even after death, prior to his post mortem examination, he would have discovered a greater incidence of bone metastasis in the lumbar spine or pelvis than was recorded in the autopsy findings.

Similarly routine plates made of cases of benign hypertrophy, adenoma or other prostatic pathology, whether prostatectomized or not, would reveal hidden bone metastases and increase the percentage of malignancy hitherto not made possible. Again at Cook County Hospital, post mortem examinations of twenty-nine cases of hypertrophy of the prostate for the years 1929 to 1932 inclusive revealed no gross bone changes indicative or suggestive of metastasis. Incidental prostatic hypertrophy was found in 182 post mortems and incidental carcinoma of the prostate was found in seven autopsies between the years 1929 and 1932, wherein the cause of death was other than prostatic disease. What the incidence of bone metastasis would have been if roentgenograms were made of all this post-mortem material, is difficult to conjecture, but the belief is strong that the percentage would be much higher than the quoted figures.

#### SUMMARY

Bone metastasis from malignancy of the prostate is a relatively common sequel, and emphasis is placed upon its frequent occurrence in the conditions of hypertrophy and enlargement of the gland, as seen in benign hypertrophy, adenoma, and carcinoma. Various statistics of Young and others are quoted to place before the reader the fact that bone metastasis is common; that every contemplated examination of men past forty, whether for pre or postoperative study or health examination, merits a routine flat plate of the genitourinary tract to determine osseous metastasis and other related pathology. A plea is made also to pathologists to have a routine flat plate of the genitourinary tract in all cases of prostatic pathology, whether a primary or incidental finding to increase our knowledge of bone metastasis and its incidence. The following types of bone metastases from primary carcinoma of the prostate are presented: 1. Osteoplastic; 2. Osteoclastic; 3. Combined osteoplastic and osteoclastic;

4. Multiple solitary sclerosing lesions. To these types mentioned, invasion of the lymphatic glands and viscera may occur, though rarely, without gross bone metastases.

In conclusion, I desire to express my thanks to Drs. F. M. Phifer, C. H. Miller and F. E. Simpson for the use of their clinical material and for the many valuable suggestions given me; also Drs. R. H. Jaffe and J. L. Kirshbaum, who so kindly gave me the privilege of looking over the autopsy records at Cook County Hospital.

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### DISCUSSION

Dr. Fred S. O'Hara, Springfield, Ill.: Today there are but two classes of people who get good, expert, first class, dyed-in-the-wool, 100 per cent. medical service, and they are the ultra-rich and the ultra-poor. If

the prostate of one of the great in-between class gets him into trouble, it keeps him in trouble until some big hearted doctor finds out what is doing.

The lesson I take out of this is just one more instance of the thing we fellows have built up ever since Dr. Cushway, Dr. Trostler, Dr. Arens, and a few other of the old wheel-horses began to show the world at large that x-ray was a necessary aid on almost everything medical. This is just another instance of where by the x-ray is the only way that you are going to give a fatal prognosis early.

A lot of these people refuse surgical relief, and they are the people that become the pot of gold at the end of the osteo-chiro rainbow. In fact, if we do tell them the truth we oftentimes scare them off the nest before they lay anything. They remain the osteo-chiro rainbow.

On the other hand, I have seen cases where caution had to be observed in condemning suspicious spots along the lumbar spine. I had one case in particular where the evidence was all in favor of the plaintiff. The evidence being all in favor of the plaintiff, I said, "This patient undoubtedly has metastases, but they pleaded poverty and went into a big hospital where the physician could play with the case for weeks, with no thought of money; the salaries going on just the same.

This case afterwards proved to be simply the glands back in the posterior part of the abdomen that gave this appearance. I was embarrassed when the patient did not act according to Hoyle.

I am perfectly serious in the only warning I bring: Look out for the retroperitoneal glands in making your diagnosis and prognosis in these cases. They can get you into a lot of trouble. From an x-ray standpoint that is the only thing I can see why they were put there.

Dr. Maurice I. Kaplan: I have also received a copy of Dr. Olin's paper and have read it in advance of the meeting. It is my hope that the paper will be published in full for it has an academic value that would be lost if left as read.

Dr. Olin has covered the literature very carefully and very thoroughly and in his paper you will find that he goes into great detail (he did not read the entire paper before you).

I agree with Dr. O'Hara, that the ultra-rich and the ultra-poor adapt themselves for study as one desires. At the Hospital I work we have no ultra-rich but we do have some of the ultra-poor; therefore, some of these patients will come within the category mentioned and work of an investigative nature can be carried out. In this type of cases the men will ask for detailed studies of the various portions of the anatomy to rule out metastasis and frequently we find interesting conditions.

Two cases come to mind where we found metastatic bone lesions in the pelvic bones, ribs and vertebral bodies that came to autopsy and neither of these had any malignant lesions in the prostate nor were the prostates in any way enlarged over the usual for individuals of their age. One of these cases was a mul-



multiple myeloma and the other was a primary carcinoma of the stomach. In the latter case the diagnosis of malignancy was made from the metastatic findings in the pelvis. This patient complained very severely with pain in the pelvis, later on with pain in the cervical region. The roentgen studies revealed metastasis of the 7th cervical.

I do not think that Dr. Olin's paper can be discussed as Dr. O'Hara has stated; the paper states facts, and this type of paper cannot be discussed, other than adding one's personal experience.

I am very glad to have had the opportunity of reading his paper and hearing it again and also for the opportunity of adding my bit.

#### ALCOHOL AND AUTOMOBILE ACCIDENTS

Herman A. Heise, Milwaukee (*Journal A. M. A.*, Sept. 8, 1934), studied the subjective and objective symptoms due to a consumption of alcohol correlated with the chemical examinations, and an analysis of 119 automobile accidents involving injury or death to 216 persons in an effort to obtain a closer estimate of the part that alcohol plays in these accidents. Subjects were given whisky and both subjective and objective symptoms were recorded. The experiments indicate a measurable loss of efficiency and judgment, even when small amounts of alcohol are accumulated in the blood or urine. Considering a person sober as long as he can still walk and talk is responsible for the small value of present day statistics regarding the relationship of alcohol to automobile accidents. By analyzing consecutive accident cases involving injury and death, it is possible to throw light on the high incidence of week-end accidents and night accidents, and the surprising preponderance of accidents in which male drivers are concerned. In this series the drinking pedestrian was concerned with many accidents; in most cases a child or old person was struck by a sober driver. It is recommended that the chemical test for alcohol, which has been proved to be practical in confirming drunkenness and thus aiding in the conviction of drunken drivers, be adopted universally, at least to confirm the observations obtained by physical examination.

#### INHALED SILICA AND ITS EFFECT ON NORMAL AND TUBERCULOUS LUNGS

Leroy U. Gardner, Saranac Lake, N. Y. (*Journal A. M. A.*, Sept. 8, 1934), believes that dusts containing silica are preeminently dangerous. Present knowledge will not permit it to be said that only free silica is harmful; possibly some of the silicates will also be incriminated. One silicate, asbestos, produces a characteristic and dangerous type of pulmonary fibrosis. Silica is a tissue poison. In low dilutions it causes nodular fibrosis; in higher concentrations it produces rapid necrosis of cells of all kinds. Human silicosis begins by damaging the pulmonary lymphatic apparatus and is followed by the development of nodular fibrosis of the parenchyma of the lungs. Silicosis specifically predisposes to infection with the tubercle bacillus. The mechanism of this

action has not yet been determined. It probably consists in some alteration in the soil rather than in changes induced in the infecting organism. Non-siliceous dusts localize about the lymphatic trunks and some of them excite the proliferation of small amounts of loose cellular connective tissue. They apparently do not increase susceptibility to tuberculosis. Nonsiliceous dusts inhaled in combination with silica modify the action of the latter, altering the anatomic characteristics of the lesions and apparently decreasing the susceptibility to tuberculosis.

#### CONTAGIOUS ABORTION IN CATTLE

The testing of cattle for Bang's disease under the Federal emergency appropriation has been started in 22 States and officials of the U. S. Bureau of Animal Industry announce that the work will be taken up soon in several other States. States in which testing is now going on are Alabama, Arkansas, Delaware, Florida, Indiana, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Montana, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, Virginia, Washington, West Virginia, and Wisconsin.

According to rough estimates, based on preliminary work, it is expected that about 15 per cent of cattle will react to the agglutination test for Bang's disease. In some localities, however, the prevalence of the disease may run as high as 20 percent or more. On this basis it is probable that by January 1, 1935, a large number of cattle will be eliminated because of reactions to the test.

Bang's disease is also known as "contagious abortion." It may be detected by the agglutination test in which a special test fluid, or antigen, is added to a small quantity of blood serum from the animal under test. Blood from infected animals causes a definite reaction.

Farmers in States cooperating in the campaign may sign agreements for testing in which they bind themselves to market reacting animals for slaughter; to safeguard the herd in purchasing new animals; to maintain sanitary safeguards; and to retest at intervals. Under these contracts the Government makes indemnity payments according to appraised values up to a maximum of \$20 for grades and \$50 for registered purebred cattle. In addition, the owner receives the proceeds of salvage, but in no case is he to receive more than the appraised value of the animal.

#### HERPES SIMPLEX RECURRENS

Prescribe 5-grain (0.32 Gm.) doses of methenamin thrice daily, over a period of 6 months, in gradually decreasing frequency—during the first two months every day; during the second two months, 3 weeks out of 4; and during the final two months, 2 weeks out of 4. In administering methenamin, advise its ingestion on a full stomach and very thoroughly diluted with water—at least a full glass. Locally, there is nothing more anti-pruritic nor more quickly drying than the familiar lotion of phenol, zinc oxide, calamine and lime water.—*Dr. C. J. White, in Pennsylvania M. J.*, Apr. 1932.

## DIRECTIONS FOR GETTING RID OF RATS

1. Rat-proofing building where possible, and do away with junk piles, etc., which may act as shelter for rats.

2. Cut off rats' food supply. Garbage should be placed in rat-proof garbage cans and care be taken that none is scattered around so that it is obtainable by rats.

3. Destruction by fumigation. The easiest and safest method, where rat burrows can be found, is to place one end of a rubber hose in the burrow, attaching the other end in the exhaust pipe of an automobile, allowing the engine to run for twenty minutes. The entrance around the hose and connecting entrances should be sealed with dirt to prevent the escape of the gas.

4. Poisoning by red squill powder is the method adopted and recommended by the U. S. Government in the wholesale destruction of rats in a community.

5. Red squill powder has the advantage of being poisonous only to rats, being relatively harmless to humans, dogs, cats, birds and other animals. Most drug stores in Detroit are now stocked with red squill powder. Two ounces, about thirty cents worth, being sufficient for the average property.

The red squill powder should be mixed separately with several different foods or baits, so as to give the rat a choice of foods and increase the chances of the bait being taken. The following foods and proportions have been found to work best:

Cereals—Mix together thoroughly, dry, one level tablespoonful of red squill powder with one measuring cup of any cereal meal such as oat meal or corn meal.

Butters Mix together or cream one-half ounce of red squill powder with one ounce of butter. Cut one-fourth of a pound loaf of bread into very thin slices and spread liberally and evenly with the squill butter mixture and make sandwiches. Cut each sandwich into six smaller ones for rat baits.

Ground Meats—Mix thoroughly one part by weight of red squill powder with ten parts of any ground meat.

Fruits and Vegetables—Dust red squill powder evenly over thin slices or small pieces of fresh fruit or vegetables and mix to insure even distribution. About one-half ounce of red squill powder should be used to two bananas or two tomatoes, or one-half small muskmelon.

Distribution of Baits—Baits should be distributed in the evening so they will be fresh when the rats are feeding. Teaspoonful or so quantities of the prepared baits should be placed along the runways or alternately in places frequented by rats, or where they have been observed to feed.

A sufficient amount should be distributed at one time to provide an ample supply for all rats on the premises; otherwise the resulting mortality will arouse the suspicion of the rats that are unharmed and render subsequent baiting less successful. Should the poisoning operations not be wholly successful, it is well to wait two or three weeks before repeating.

Prebaiting—The distribution of the same foods or baits prepared in the same way without the red squill, every one or two nights until the rats are accustomed to eating them, increases the chances for success when the poison is given.

5. Trapping—Trapping rats is just as effective as poisoning them, but requires more skill and labor. Snap traps and cage traps are obtainable at hardware stores.

## SCHOOL COACHES EXPRESS OPINIONS ON SMOKING BY THE ATHLETE

The problem of tobacco for the athlete has received much consideration on the part of coaches and authorities on athletics since the postwar popularization of cigarette smoking.

Results of a questionnaire sent out recently by a faculty adviser in athletics are published in *Scholastic Coach*. The 140 coaches and athletic directors whose opinions were sought hold positions in secondary schools and in colleges. In answer to the following questions, 102 replies were received:

1. Do you believe that smoking retards the physical development of a boy and therefore does him permanent physical harm? Yes, 79. No, 12. Indefinite or unanswered, 11.

2. Does smoking in moderation, say, not more than five cigarettes a day, handicap a boy in athletics even if the smoking habit was formed after he was grown or nearly grown? Yes, 71. No, 16. Unanswered, 15.

3. Do you believe that it helps an athlete to any appreciable extent to stop smoking in training season (or seasons) if he is a regular smoker at other times? Yes, 87. No, 6. Unanswered, 9.

4. Has it been your observation that improvement shown by non-smoking athletes was more consistent and greater than that shown by athletes who are smokers? Yes, 65. No, 18. Unanswered, 19.

5. Are athletes who are non-smokers more easy to discipline and therefore better workers than athletes who smoke? Yes, 61. No, 17. Unanswered, 24.

6. As a general proposition have you found the non-smoking athlete a more valuable member of a team than the smoker? Yes, 76. No, 14. Unanswered, 12.

7. Did you smoke when a school boy? Yes, 15. No, 79. Unanswered, 10.

8. Did you smoke when a college student? Yes, 45. No, 49. Unanswered, 8.—*Hygeia*.

## PENALTY

Whether a penalty is mild or severe depends on all the facts involved.

"Next case," called out the clerk, and a middle-aged Irish couple were ushered into the court room. They made a pitiful picture—the strong, healthy, tall, broad woman, and her poor, meek, battered little husband. The magistrate adjusted his glasses, then turned to the man and said, "You are accused of beating your wife. What have you to say?"

"Guilty, sir," replied the little man, without a moment's hesitation.

"Seven dollars or seven days," said the magistrate.

After the session was over, one of the court officials asked the magistrate if he hadn't been rather severe in punishing the little fellow.

"Oh, no," exclaimed the magistrate. "I had to give him something for bragging."



### DIET IN PREGNANCY

The mother's diet, during pregnancy and lactation, ought to include:

2 pints of milk daily.

1 or 2 substantial servings of green vegetables—cabbage, spinach or lettuce—daily.

1 or 2 eggs or egg yolks daily.

An apple or orange or some fresh fruit daily.

Sea fish twice or more a week.

Calf's liver once a week.

If cod-liver oil can be taken, 2 teaspoonfuls daily is advisable.

The rest of the diet can be made up as the woman wishes.—*Dr. Edward Mellanby, in Lancet (London), Nov. 18, 1933.*

### BIRTH ANNOUNCEMENT\*

(à la Auto Ads)

The John Smith Production Co. announces the 1934 Baby Model, Billie Smith, released April 19, 1934. J. Smith, designer and chief engineer; Mary Smith, production manager.

#### *Features of the New Model*

Two lung-power; free squealing; water-cooled base; weight, 7½ pounds; knee action, vacuum feed; changeable seat covers; wheel base, 19 inches. This model has a perfect stream line.—*Contributed by Dr. J. P. G., Ohio.*

\*The names are, of course, fictitious, but the announcement is genuine.—Ed.

### Marriages

Orville Lindsay Abbott, Belleflower, Ill., to Miss Truth Kirk at Bloomington, June 16.

William Jackson Copeland, Cary, Ill., to Miss Jennie Alme of Rhinelander, Wis., September 7.

Joseph E. O'Donnell, Champaign, Ill., to Miss Palma Louise Utke of Enderlin, N. D., in Chicago, August 19.

### Personals

Dr. Leo K. Campbell has been appointed assistant clinical professor of medicine at Rush Medical College.

Dr. Sidney O. Levinson, Chicago, discussed infantile paralysis before the Iroquois County Medical Society at Watseka, September 13.

At a meeting of the Peoria City Medical Society, September 18, Dr. Max Thorek, Chicago, discussed a new method of obliterating the gall-bladder by electrosurgical means.

Dr. Frederick B. Balmer, Chicago, discussed "Medical Economics as an Essential Part of a Physician's Education" before the Peoria City Medical Society at its annual fish fry at the Illinois Yacht and Canoe Club, September 5.

At a meeting of the Adams County Medical Society in Quincy, September 10, Dr. Clayton J. Lundy, Chicago, discussed the treatment of rheumatic disease. A motion picture on "The Mechanism and Electrocardiographic Registration of the Normal Heart Beat" was also shown.

The St. Clair County Medical Society was addressed in Belleville, September 5, by Dr. Edmund Bechtold on "Economic Conditions as I Found Them in the Scandinavian Countries and in Russia," and by Dr. Frederick V. Emmert, St. Louis, in East St. Louis, September 6, on "Diagnosis and Treatment of Cervices in Office Practice."

A stag party was held at the Army and Navy Club, September 5, in honor of Major Lorin A. Greene, medical officer, sixth corps area, who is being transferred to foreign service in the Philippines. A dinner was also given in his honor recently at the Glenview Country Club. At this occasion, Dr. Cleveland C. MacLane was notified of his promotion to colonel in the medical reserve.

Aaron Arkin addressed the Rock Island County Medical Society on September 11.

C. C. Maher was invited to give a paper on Heart Disease before the Kankakee County Medical Society on September 13.

Gustave F. Weinfeld addressed the Wilmette Mothers' Club on September 10; subject, "Mental Training of the Child."

Frederick B. Balmer addressed the Peoria City Medical Society on the evening of September 5 at the opening meeting of the year held at the Illinois Valley Yacht and Canoe Club. The subject of Dr. Balmer's address was "Medical Economics as an Essential Part of a Physician's Education."

Eugene F. Traut addressed the Scott County Medical Society of Iowa on September 4.

The Chicago Ophthalmological Society elected the following officers for the ensuing year: E. V. L. Brown, president; Thomas D. Allen, secretary-treasurer.

The following officers have been elected for the year 1934-35 by the Institute of Traumatic Surgery: John D. Ellis, president; George G. Davis, vice-president, and Frederick W. Slobe, secretary.

F. E. Senear addressed Will-Grundy County Medical Society Sept. 19 at Joliet.

George DeTarnowsky addressed the members of DuPage County Medical Society on September 19.

Francis Lederer addressed Will-Grundy County Medical Society at Joliet, September 26, on "Cancer About the Head and Neck—A Critical Analysis of the Available Therapeutic Measures."

Frank F. Maple was invited to give a talk on "Septic Abortion" before the Fulton County Medical Society, September 27.

Gilbert FitzPatrick addressed Marion County Medical Society, September 27; subject, "Cancer."

Dr. Max Thorek was awarded the Gold Medal for his exhibit on Electrosurgical Obliteration of the Gall Bladder and Dr. Simon Benson of the University of Chicago was awarded the Silver Medal for work in Physiology at the American Congress of Physical Therapy held in Philadelphia September 10 to 13, inclusive.

Dr. A. R. Moore, Professor of General Physiology at the University of Oregon, who has recently returned from Sendai, Japan, where he was Rockefeller Visiting Professor of Physiology, will deliver a series of lectures from October 15 to 20 at the College of Medicine of the University of Illinois, under the auspices of the Graduate School. The lectures will be on the Physiological Basis of Individuality in the Early Embryo and in Elementary Forms: (1) The cytoplasm as a biophysical system, 4:00 p. m., October 15. (2) Special cytoplasmic structures, 4:00 p. m., October 16. (3) Integrative mechanisms. The individual in motor reactions of simple forms, 1:00 p. m., October 17. (4) Phylogenetic beginnings of the central nervous system, 4:00 p. m., October 18. (5) Modifiability of reactions, 4:00 p. m., October 19.

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### News Notes

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—That epidemic encephalitis is on the wane in Illinois is indicated in reports of twenty-four new cases of the disease for the week beginning

September 10. This number compares with a total of forty-nine for the preceding week. The Illinois State Department of Health reports that the bulk of the cases continue to occur in the three Main epidemic centers: Vermilion County, eight; Fulton County, four, and Peoria County, three.

—State officials have launched a campaign against the sale of impure raw milk, which is now being dispensed at roadside stands and milk depots in Illinois, according to the *Chicago Tribune*. Efforts have been concentrated in suburbs outside of Chicago, it was stated, where, in many cases, the milk depots do not come under the jurisdiction of municipal health authorities. It was pointed out that about 80 per cent. of the depots investigated do not measure up to the sanitation standards of the state dairy and food division.

The Cook County Graduate School of Medicine, 427 S. Honore Street, Chicago, will offer October 22 a two weeks' intensive course of Internal Medicine, a two weeks' intensive course in Eye, Ear, Nose & Throat, and a ten days' intensive course in Traumatic Surgery. These courses will be given provided the required number of doctors are registered for the work; also they will be limited as to the number permitted to take the work. The clinical work will be given in the Cook County Hospital and the didactic in the school building.

The Radiological Society of North America will hold its next Annual Meeting at the Hotel Peabody, Memphis, Tenn., December 3-7, 1934. The medical profession is cordially invited to attend. Further information may be obtained by addressing the secretary-treasurer, Dr. Donald S. Childs, 607 Medical Arts Bldg., Syracuse, N. Y.

—Figures obtained in a study of maternal mortality in Illinois during the last five years by the State Department of Health reveal that Richland County leads in maternal deaths with a rate of 16.1 per thousand births. This rate is three times as high as that for the state as a whole (5.6). Twenty-four maternal deaths occurred in the county among 1,488 births. Three counties, Bond, Menard and Putnam, reported no maternal deaths in connection with 2,146 births



during the five years. Counties reporting rates of 10 or more during this period include Lee, 13.8; Pulaski, 13.6; Alexander, 13.5; Morgan, 11.8; Effingham, 10.5; Scott, 10.4; Perry, 10.1; Saline, 10.1, and Logan, 10.

—With the appointment of Miss Nellie X. Hawkinson as professor of nursing education, a program of nursing education has been begun at the University of Chicago. The committee of nursing education, appointed by President Hutchins last winter after a tentative plan for the organization of the courses had been approved, will be responsible for the formulation and adoption of the sequences of studies leading to degrees. Sequences for teachers of nursing, supervisors and administrative officers in schools of nursing are being planned as the first step. The degree will be cleared for the present through the division of biological sciences, although the courses included will be offered in education, home economics, psychology and other departments as well as in the science departments.

—Ceremonies on Tuesday, October 2, marked the opening of the seventy-sixth annual session of Northwestern University School of Medicine. The Founders' Day address was delivered by Leslie B. Arey, Ph.D., Robert L. Rea professor of anatomy, on "Old Ideals in Modern Medicine." A feature of the celebration will be the unveiling of an oil portrait of Dr. William E. Morgan, Emeritus Professor of Surgery and Clinical Surgery, Loyola University School of Medicine, and a graduate of Northwestern, class of 1882. The portrait, presented by Dr. Charles F. Sawyer, clinical professor of surgery at Loyola, will be placed in the Archibald Church Library. Dr. Sawyer graduated from Northwestern in 1904.

—Dr. Henry S. Houghton, who since January 1 has been associate dean of the Division of Biological Sciences and director of the University Clinics, University of Chicago, has resigned to become advisory representative of the China Medical Board, effective January 1. The new director of clinics is Dr. Arthur C. Bachmeyer, who, until his resignation September 15, had been dean of the University of Cincinnati College of Medicine, Cincinnati, for nine years. Dr.

Bachmeyer, following his resignation as dean, continued as superintendent of the Cincinnati General Hospital and as professor of hospital administration. He has been head of the hospital for twenty years. Dr. Houghton, until his affiliation with the University of Chicago, had been dean of the University of Iowa College of Medicine since 1928. The China Medical Board, an agency of the Rockefeller Foundation, owns and supports the Peiping Union Medical College.

—Physicians licensed to practice medicine in California will have sole charge of the distribution of dinitrophenol in the future, in accordance with a resolution adopted by the state department of health, August 20. Since dinitrophenol has already been responsible for a number of deaths, the board forbids anyone other than a licensed physician to prescribe, dispense or sell this product.

Lectures were given in the Hall of Science at the World's Fair during September by the following physicians. A committee of the Chicago Medical Society arranged the program through the Educational Committee of the Illinois State Medical Society:

September 1—"Poisoning from the Bowel," Charles Drueck, M. D.

September 3—"Deep Sea Fishing for Vitamins," Frank B. Kirby, M. D.

September 4—"How About Your Heart?," Thomas P. Foley, M. D.

September 5—"Hay Fever," Leon Unger, M. D.

September 6—"The Forgotten Specialty," N. S. Davis, M. D., III.

September 7—"Artificial Fever and Disease," Clarence A. Neyman, M. D.

September 8—"Through the Cycles of Life," Laurence H. Mayers, M. D.

September 10—"Modern Care of Handicapped Children," Harold M. Camp, M. D.

September 11—"High Blood Pressure," G. K. Fenn, M. D.

September 12—"Diabetes," Ernest C. Olson, M. D.

September 13—"Diseases of the Kidneys," Norris J. Heckel, M. D.

September 14—"Mental Health or the Struggle for Poise," Meyer Solomon, M. D.

September 15—"Cancer," Max Cutler, M. D.

September 17—"Cancer," W. A. Newman Dorland, M. D.

September 18—"Some Common Rectal Ailments," Thomas J. Merar, M. D.

September 19—"Rheumatism in Children," H. W. Elghammer, M. D.

September 20—"Uses and Abuses of Ultra-violet Radiation," John S. Coulter, M. D.

September 21—"Rheumatism, What of It?," H. K. Scatlift, M. D.

September 22—"How About 'Imaginary' Diseases?," Cyril Hale, M. D.

September 24—"Budgeting Energy," George B. Lake, M. D.

September 25—"Obesity in Children," Ralph Kunstadter, M. D.

September 26—"Reducing and Tuberculosis," Benjamin Goldberg, M. D.

September 27—"Newer Knowledge on Vitamins," C. I. Reed, Ph. D.

September 28—"X-Ray and Its Medical Uses," M. J. Hubeny, M. D.

September 29—"Poisons in Our Everyday Life," William D. McNally, M. D.

Committee: Dr. Wilbur Post, Dr. Julius H. Hess, Dr. Hugh N. MacKechnie, Chairman.

## Deaths

HARVEY COMBS ASHER, Chicago; Northwestern University Medical School, Chicago, 1907; aged 51; died, July 31, of a self inflicted bullet wound.

CYRUS H. BARR, Dwight, Ill.; Chicago Medical College, 1882; aged 79; a Fellow, A. M. A.; died, July 9, of cerebral hemorrhage.

JOHN HARRISON BLANKS, Zion, Ill.; University of Tennessee Medical Department, Nashville, 1891; city health officer; aged 68; died, July 3, of gangrene of both lower legs and feet and chronic heart disease.

CARL FERDINAND BOOKWALTER, Chicago; Johns Hopkins University School of Medicine, Baltimore, 1910; a Fellow, A. M. A.; assistant professor of oto-laryngology, Northwestern University Medical School; fellow of the American College of Surgeons; on the staff of the Passavant Memorial Hospital; aged 54; was found dead, September 10, in a hotel at Danville, Ill., of a gunshot wound, presumably self inflicted.

ERNEST HERBERT BRITTEN, Auburn, Ill.; Barnes Medical College, St. Louis, 1902; aged 59; died, August 7, of cerebral hemorrhage.

HENRY A. BROAD, Chicago; Illinois Medical College, Chicago, 1909; on the staff of the Lutheran Memorial Hospital; aged 63; died, September 6, of hypostatic pneumonia and coronary thrombosis.

JAMES M. O. BRUNER, Port Byron, Ill.; College of Physicians and Surgeons of Chicago, 1887; aged 75; died, August 14, in the Methodist Hospital, Brooklyn.

JAMES WILSON DU COMB, Carlyle, Ill.; Barnes Medical College, St. Louis, 1905; member of the Illinois State Medical Society; formerly mayor and member of the board of education of Beckemeyer; aged 62; died, July 24, of arthritis, as the result of injuries received in an automobile accident which occurred several years ago.

GEORGE CURTIS ELLIS, Chicago; Rush Medical College, Chicago, 1918; on the staff of the Provident Hos-

pital; aged 44; died, September 2, in the Albert Merritt Billings Hospital, of carcinoma of the rectum with metastasis to the liver.

HARVEY W. GARRISON, Hillview, Ill.; Barnes Medical College, St. Louis, 1906; also a pharmacist; member of the Illinois State Medical Society; formerly member of the school board; aged 53; died, August 6, of carcinoma of the rectum with metastases to the liver and lungs.

AMANDUS MAX HORN, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1912; member of the Illinois State Medical Society; aged 66; died, July 24, of arterio-sclerosis and myocarditis.

WILLIAM CLAIBORNE ISOM, East St. Louis, Ill.; St. Louis College of Physicians and Surgeons, 1908; aged 62; died, July 8, of cholecystitis and cholelithiasis.

BOLESLAUS KLARKOWSKI, Chicago; Illinois Medical College, Chicago, 1903; formerly member of the board of education; aged 71; died, August 20, of lobar pneumonia.

GUSTAV KOEHLER, Chicago; Julius-Maximilians-Universität, Medizinische Fakultät, Würzburg, Bavaria, 1895; a Fellow, A. M. A.; aged 68; died, August 5, in the Grant Hospital, of carcinoma and embolism.

JOHN RODNEY LAMBERT, Quincy, Ill.; Rush Medical College, Chicago, 1889; University of Pennsylvania School of Medicine, Philadelphia, 1890; aged 66, died, July 15, in St. Mary's Hospital, of splenomyelogenous leukemia.

WILLIAM R. MIZELL, Shelbyville, Ill.; Miami Medical College, Cincinnati, 1874; Civil War veteran; aged 94; died, August 1, of senility.

FRANKLIN W. PALMER, Chatsworth, Ill.; Barnes Medical College, St. Louis, 1898; aged 61; was drowned, July 6, while fishing in the Kankakee River near Wilmington, Ill.

CHARLES W. PIPER, Chicago; Chicago Medical College, 1891; a Fellow, A. M. A.; aged 69; died, July 11, of coronary occlusion and arteriosclerosis.

WILLIAM JOSEPH SIEGLER, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; a Fellow, A. M. A.; on the staff of Evangelical Hospital; aged 59; died August 17, of angina pectoris.

WILLIAM FRANKLIN SIMMONS, Kell, Ill.; Barnes Medical College, St. Louis, 1897; aged 76; died, June 29, of myocarditis.

NATHANIEL THACKERY STEVENS, Clifton, Ill.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1892; a Fellow, A. M. A.; past president of the Kankakee County Medical Society; on the staff of St. Mary Hospital, Kankakee; aged 70; died, July 26, at the North Shore Health Resort, Winnetka.

WINFIELD S. THARP, St. Elmo, Ill.; University of Louisville (Ky.) School of Medicine, 1875; aged 85, died, May 31, of myocarditis.

JOE ELMER WIDNER, Chicago; Niagara University Medical Department, Buffalo, 1890; aged 65; died, July 31, of chronic nephritis, arteriosclerosis and myocarditis.



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1. Name ..... Country of birth.....Date of birth.....

2. Address .....Race .....

3. Single, married, widowed, divorced.....

4. Occupation .....

5. How often have you changed your work?.....Why? .....

6. Is your work dangerous or unhealthy?.....

7. Is it indoors or out?.....

8. Is it light where you work?.....Dark?.....Dusty? ....Smelly?....Noisy?....Crowded?....

9. At work are you usually seated, standing, or walking? .....

10. How many hours a day do you work?.....How many days a week?.....

11. Have you a room and bed to yourself?.....With window open?.....

12. What are your hours of sleep?.....Is your sleep restful?.....By what is it  
disturbed? .....

13. Where do you eat your meals?.....

14. How much time do you take for each meal?.....

15. Of what foods are you especially fond?.....

16. How much do you drink daily of:  
    Water .....Tea .....Soft drinks .....

Milk .....Coffee.....Alcoholic drinks .....

17. Do you eat candy?.....

18. Do you have a bowel movement daily without the use of drugs?.....What laxative  
do you use?.....How often? .....Do you have pain or  
bleeding with bowel movement?.....How often? .....

19. Have your menstrual periods been regular?.....

20. Have they interfered with your usual occupations? .....

21. Have pregnancies and confinements been free from accidents? .....

22. How often do you bathe?.....

23. What regular exercises do you take in addition to your work?.....

24. Do you share in church, social, political, club, or trade associations?.....

25. What are your pleasures or recreations?.....

26. Have you had any of the following diseases and at what ages?  
    Tuberculosis .....Scarlet fever .....Tonsilitis .....

Malaria .....Diphtheria.....Frequent colds.....

Rheumatism .....Typhoid fever .....Syphilis or gonorrhea.....

27. Do you have dyspepsia?.....

28. Do you have headaches?.....

29. Are you short of breath on going up stairs?.....

30. Do you catch cold easily and often?.....

31. Are you subject to sore throats?.....

32. Have you been vaccinated against small pox, typhoid fever, diphtheria?.....When? .....

33. Have you had any accidents, broken bones or surgical operations? .....

34. How often do you consult you dentist?.....

35. Are you as well at present as formerly?.....If not, why?.....

36. Do you remember any important diseases of your parents or family which may have affected your own  
health? .....

Remarks: .....

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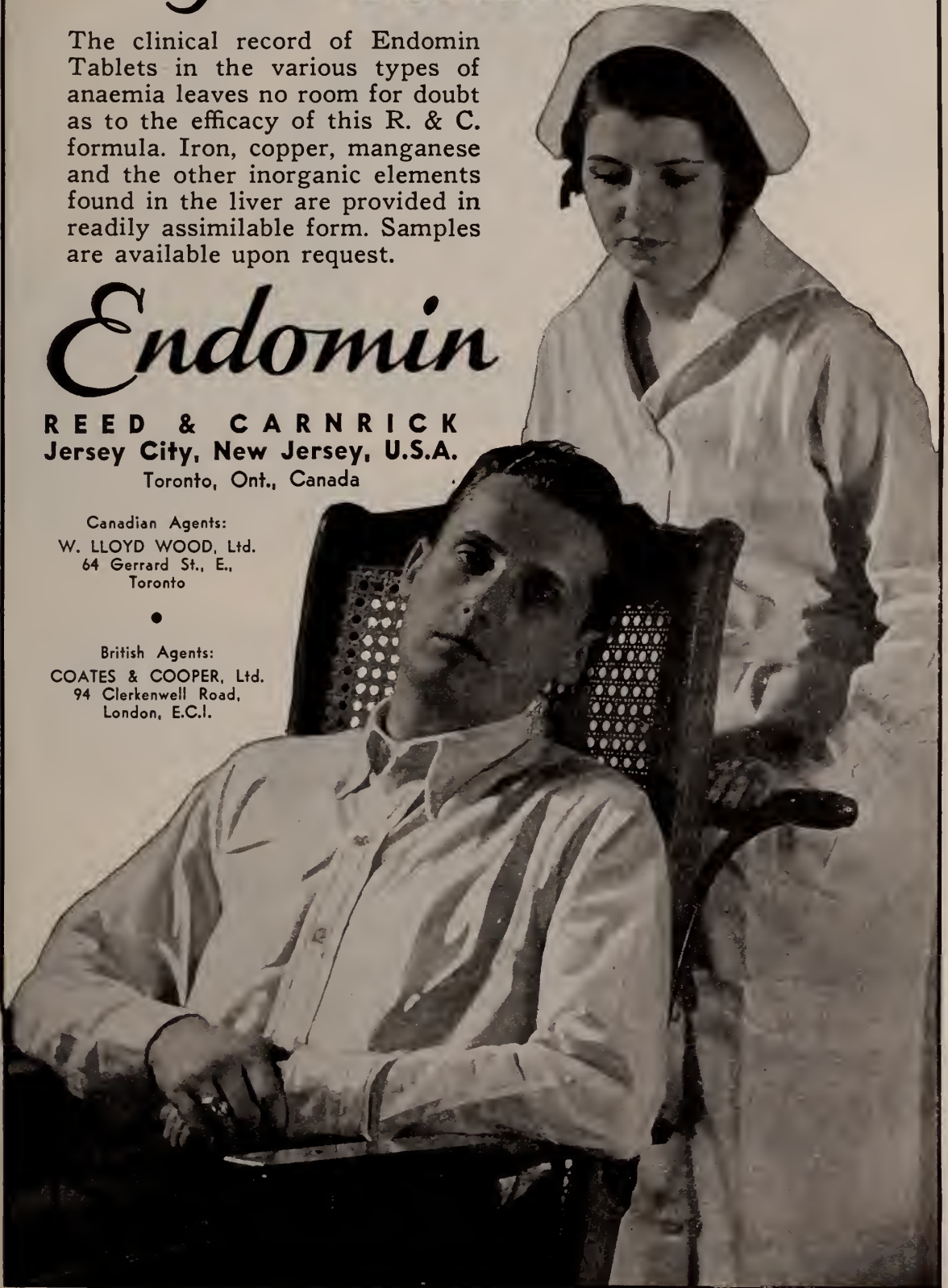
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## Book Reviews

MODERN TREATMENT IN GENERAL PRACTICE. By Cecil P. G. Wakeley. Baltimore. Wm. Wood & Co. 1934. Price \$4.00.

The articles of which this volume is composed are written for the general practitioner by the specialist, and are designed and intended to set forth concisely and interestingly the latest progress made in medicine and surgery, with special stress on diagnosis and treatment.

HUMAN STERILITY. By Samuel Raynor Meaker, M. D. With 27 original illustrations. Baltimore. The Williams and Wilkins Company. 1934. Price \$4.00

This work is a practical manual of clinical procedure, it treats of the causation, diagnosis and treatment of human sterility. This work brings up-to-date in a concise form practically all that is known on this important subject.

BRONCHOSCOPY, ESOPHAGOSCOPY AND GASTROSCOPY. By Chevalier Jackson, M. D., Sc. D., LL. D., F. A. C. S., Professor of Bronchoscopy and Esophagoscopy, Temple University; Bronchosopist, Temple University Hospital; and Chevalier L. Jackson, A. B., M. D., M. Sc. (Med.), F. A. C. S., Professor of Clinical Bronchoscopy, Temple University; Bronchosopist, Temple University Hospital. Third Edition, Reset. 485 pages with 207 illustrations and 15 color plates. Philadelphia and London: W. B. Saunders Company, 1934. Cloth, \$9.00 net.

In this edition the author has rewritten the chapters dealing with the various phases of Bronchoscopy for disease. This edition is based upon the author's own clinical experience. The work is strictly up-to-date and should be in the library of every laryngologist.

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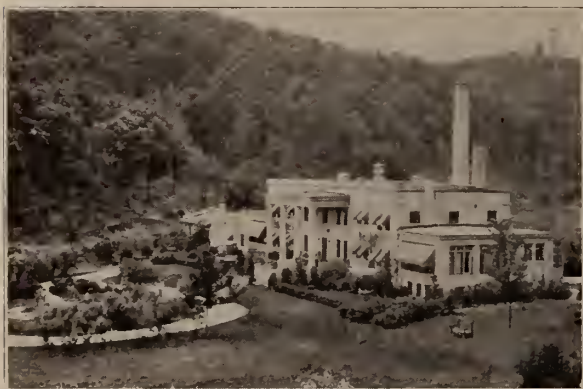


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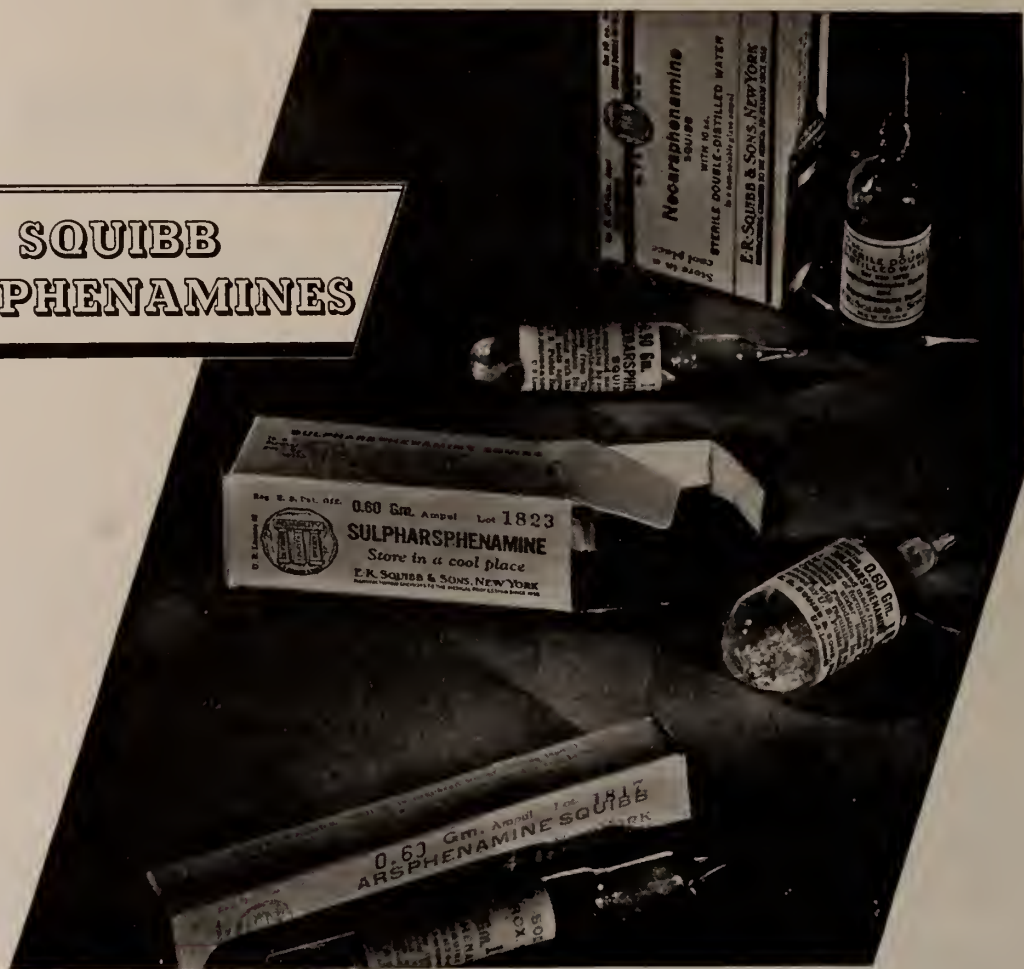
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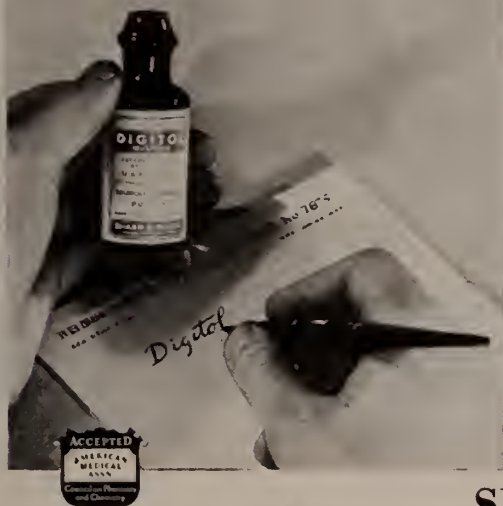
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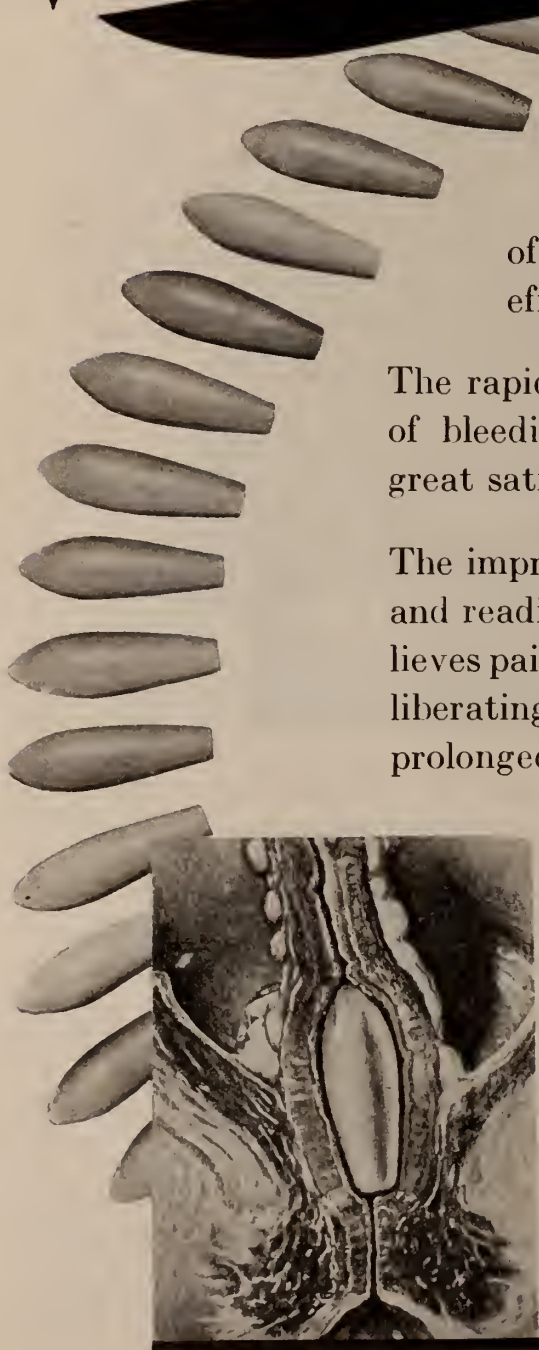
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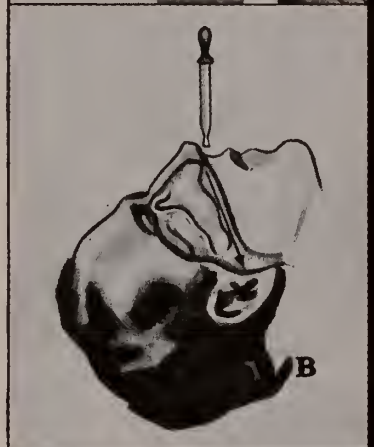
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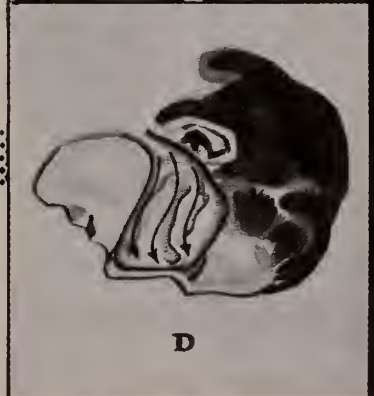
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# Relative Values of Carbohydrates Employed in Infant Feeding

Continued down from 1911

## 1916

"For the addition of sugar, I usually use dextri-maltose, which should be administered from the first, afterwards running up to as high a per cent as the child will take."—*L. L. Meininger: Use of Eiweissmilch, Arch. Pediat., 33:520-532, July, 1916.*

## 1916

In the treatment of marasmus, "Three per cent of malt sugar should be administered from the first, afterwards running up to as high a per cent as the child will take."—*L. T. Royster: A Handbook of Infant Feeding, C. V. Mosby Co., St. Louis, 1916, p. 100.*

## 1916

"Least irritating of all sugars, and more readily digested and quickly absorbed, is maltose."—*H. Lowenburg: A Practical Treatise on Infant Feeding and Allied Topics, F. A. Davis Co., Phila., 1916, p. 73.*

## 1916

"Dextrin-maltose is valuable in cases where intestinal disturbances are due to fermentation of milk sugar."

"Treatment (of sugar intoxication) consists in eliminating the latter (whcy salts) as well as the sugars from the diet temporarily, and when the symptoms have subsided, a different sugar in proper proportion should be cautiously added; maltose and dextrin are preferable, because they are not apt to produce fermentation, while milk sugar is prone to set up fever and diarrhea."—*E. E. Graham: Diseases of Children, Lea & Febiger, Phila., 1916, pp. 179-201.*

## 1917

"For children who are not gaining on a normal formula with a sufficient amount of sugar of milk, or children who vomit when sugar of milk is fed, or who are constipated, the use of maltose instead of lactose often gives most satisfactory results. This is readily accomplished by substituting for the 4 or 5 per cent. of added sugar of milk an equal amount of dextri-maltose or malted milk, which latter gives, in addition to the maltose, some protein food and an insignificant amount of fat. In many cases children who have failed to gain on other food will immediately show a marked gain as soon as this change is made."—*R. G. Freeman: Elements of Pediatrics, Macmillan Co., New York, 1917, pp. 191 and 192.*

## 1917

"The carbohydrates most used in infant feeding are the three soluble sugars and starch. The three soluble sugars are lactose, or milk sugar, maltose, or malt sugar, and saccharose, or cane sugar. Maltose is not used in its pure form, on account of its cost. The various commercial preparations of maltose are combinations of maltose with various dextrans, but as in digestion dextrin is converted into maltose, the chemistry is practically the same."

"The sugar which is not absorbed is broken down by the bacteria of the intestine into a great variety of fermentation products, among them being lactic, butyric, acetic, and succinic acids."

"Another effect of the excessive fermentation which results from a relative excess of carbohydrate in the food, is the formation of an excessive amount of gas. This may cause abdominal distention, and, extending backward, it may carry irritating acid products into the stomach, and thus cause vomiting."

"Lactose is the sugar most likely to produce acute symptoms. The stools are practically always green and very irritating. Flatulence and colic are less prominent."

"The maltose-dextrin preparations rarely produce acute exacerbations."—*C. H. Dunn: The Hygienic and Medical Treatment of Children, Southworth Co., Troy, New York, 1917, pp. 423, 424, 425, 428.*

## 1918

"The sugars in the foods are milk sugar which is found in mother's milk as well as in cow's milk, cane sugar and malt sugar. Though milk sugar is a natural ingredient of milk it is not well borne by babies when added to their food; they digest cane sugar, the ordinary granulated sugar, much better; malt sugar is the easiest digested by babies."—*C. G. Leo-Wolf: Nursing in Diseases of Children, C. V. Mosby Co., St. Louis, 1918, p. 24.*

## 1918

"Maltose (malt sugar) has the advantage of being very easily digested; when part of the sugar given is maltose, many children gain more rapidly in weight than when only milk sugar or cane sugar is used."—*L. E. Holt: The Care and Feeding of Children, D. Appleton & Co., New York, 1918, p. 66.*

## 1919

"In the administration of protein milk with its large protein content, by adding to it sugar which is not easily fermented (dextri-

maltose), we produce, instead of pathologic fermentation, a condition of putrefaction which changes the acidity of the intestinal contents to alkalinity, the peristalsis is decreased, the intestinal contents pass slowly through the large intestines with absorption of fluid and excretion of calcium and magnesium salts. These minerals unite with fatty acids to form the typical fat-soap-clay-coloured constipated stools characteristic of protein milk feeding, and it is at this point that dextri-maltose should be added to the food."

"The majority of the cases were kept on protein milk for a period varying from three to four weeks, and, in many instances, contrary to the usual opinion, we were able to keep the children on protein milk plus starch and dextri-maltose, sufficient for their caloric needs for a period of several months, in each instance accompanied by a substantial gain in weight and normal increase in vigor and tissue turgor with comparative freedom from digestive symptoms."—*A. Brown and I. F. MacLachlan: Protein milk powder, Canad. M. A. J., 9:528-537, June, 1919.*

## 1920

"There are three sugars commonly employed in infant feeding: (1) malt sugar or dextri-maltose, (2) cane sugar, and (3) milk sugar. Malt sugar is the most easily digested and assimilated, cane sugar next and sugar of milk the least so."—*L. O. Frech: The caloric method of artificial feeding in normal babies, Illinois M. J. 38:484-488, Dec. 1920.*

## 1920

Regarding treatment in disturbed metabolic balance in infants, "The one carbohydrate which seems to give the most satisfactory results in these cases is malt sugar."—*C. H. Seybert: Disturbed metabolic balance in infancy, Hahneman, Monthly, pp. 379-382, June, 1920.*

## 1921

"Next to woman's milk is cow's milk in simple modification with water and sugar in proper proportions and amount according to the age of the child. Milk Sugar is the most expensive and least satisfactory sugar. Dextri-Maltose is the best sugar."—*A. A. Shawkey: Infant foods and infant feeding, West Virginia M. J. 15:284-287, Feb. 1921.*

## 1921

With reference to hypotrophy, "In mild cases, the addition of dextri-maltose instead of cane or milk sugar may be sufficient to obtain a gain in weight."—*C. Herrman: The treatment of nutritional disorders in artificially fed infants, New York M. J. 114:158-160, Aug. 1921.*

## 1921

"Maltose and dextrin compounds are acceptable to the infant's digestion in relatively larger quantities. They are not as sweet as cane sugar. They are of practical value when larger amounts of cane sugar are not well borne."

"The so-called 'Mead's Dextri maltose with Potassium Bicarbonate' is laxative, and in the presence of a stationary weight may be given in larger amounts."—*F. W. Ferguson: A method for the modification of cow's milk, Journal-Lancet, 41:628-629, Dec. 1, 1921.*

## 1921

For cases of fermentative diarrhea, "... the ideal plan of treatment would be to give a food which is low in sugar (the food which that group of organisms thrive on) and high in protein. Calcium caseinate milk accomplishes this purpose. In our series of cases, we found it was necessary to use the casein calcium for from 5-8 days; we then stopped it and added dextri-maltose to the formula."—*A. G. DeSanctis and L. V. Pailer: The value of calcium caseinate milk in fermentative diarrhea, Arch. Pediat. 38:233-236, April, 1921.*

## 1922

In the treatment of diarrhea, "The sugar is added gradually as conditions admit, some sugar other than milk sugar or cane sugar being used, preferably dextrin and maltose."—*H. E. Small: Diarrhoea in bottle-fed infants, J. Maine M. A. 12:154-158, Jan. 1922.*

## 1922

"The use of other soluble carbohydrates other than lactose for milk modifications are very good. Some believe the addition of dextrose or dextri-maltose makes the casein curd softer and easier to digest. This is questioned, but all agree that in cases of malnutrition, where the patient is intolerant to lactose and cannot get the benefit needed from the fat in the diet that the dextri-maltose is invaluable as it is the easiest sugar to digest, and can be immediately used for energy production without undergoing further change."—*E. G. Padfield: Remarks on infant feeding, J. Kansas M. S. 22:97-101, April, 1922.*

Continued down to 1934

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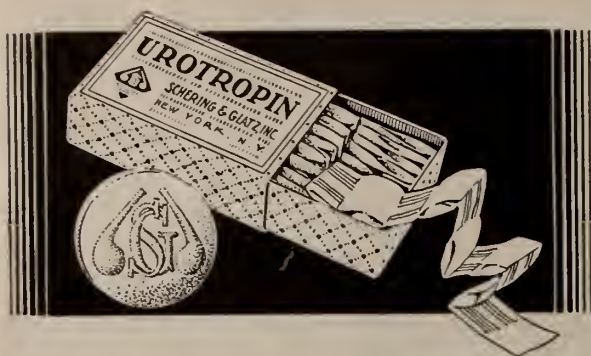
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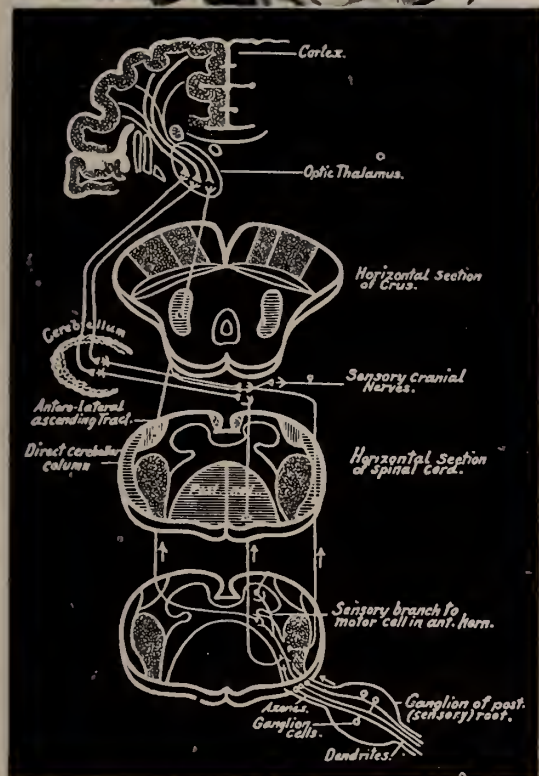
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# ILLINOIS MEDICAL JOURNAL

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## Editorials

### ONE OF THE ADMITTED EVILS OF STATE MEDICINE IS THAT POLI- TICS WOULD HAVE ITS FINGER ON THE WHEEL

Minimum of statesmanship and maximum of politics are two highlights in the inherencies of state medicine.

A snake and his shadow are far more separable than are state medicine and politics. But in this credulous country of ours it may take a complete wreckage of our entire social structure to convince the man who wants something for nothing, that no such relationship endures in mortal life; that Santa Claus is a phantasy of childhood, and that even if Peter is robbed to pay Paul, that the debt must be met eventually if eternal equilibrium is to be maintained.

That farcical body, with its more farcical report, The Committee on the Costs of Medical Care, has done as much damage to the general public as the child who tossed a match into a gasoline tank, because the day was cold and the villagers were suffering from the weather.

Staunchly the dissenting minority group stands by its statement that

"There is nothing in experience to show that state medicine is a workable scheme or that it would not contain evils of its own which would be worse than those which it is supposed to alleviate. Above all, there is no evidence to prove that it would accomplish what ought to be the first object of this committee, the lessening of the costs of medical care."

One of the admitted evils of state medicine is that politics would have its finger on the wheel. Where in the United States is there any greater evil than the policies of politics? Among its political inherencies are graft, stupidity, incompetence, intimidation and everywhere the suppression of individual enterprise, together with an ever increasing tax-rate. For this socialized regime in medicine can never exist without state and federal financial aid secured from tax levies

to say nothing of direct local taxation for this purpose. Even if medical committees are allowed to direct (?) the work, the string on such direction lies in the clause that such committees "might be elected by popular vote like school-boards or be appointed by municipal or county officials."

Regimenting medical men under state control means but one thing and that is the dragging of the science of medicine into the gutter of political robbery. One of the country's prominent doctors burst frankly into print a month or so ago on the reason why he did not enter into that branch of the profession that appealed to him the most—i. e. institutional practice. Said this man in part,

"I served on the staffs of two state hospitals. One of these was frankly and openly under political control while the other had been divorced supposedly from politics and placed under a civil service system. Yet there was no difference in the matter of the amount of political interference in the two institutions. State institutions are as their name implies, instruments of the state, and are in the hands of politicians. Shameful, but true. And equally appalling is the fact that the public as an entity, knows no gratitude. And so I saw good physicians, who had been in the service so long as 15 or 20 years, discharged without explanation or ceremony because of some slight difference or misunderstanding arising between them and the politically controlling powers."

Now in these institutions of which this physician speaks, the profession sees state medicine in miniature. What would be the conditions in a system when the profession is controlled by a lay-dictating medical super-bureaucracy that would mulct from the taxpayer an even greater levy than that secured now for the school system, or for the army and navy.

Politics has made a mess of public affairs. Politics has smudged the school system. Politics should not contaminate medicine.

Public health and welfare, humanity in distress, cannot tolerate and should not be forced to struggle against the hand of the big political boss behind the hand that wields the scalpel.

Political mismanagement and bureaucracy should be bridled and bitted before it goes another step.

## THE GENERAL PUBLIC LONG THE GOAT OF POLITICAL BOSSES IS NOW MADE THE GUINEA PIG FOR LAY EXPERIMENTERS IN MEDICAL ECONOMICS

One of the first essentials in the traditional recipe for hare soup reads,  
"First catch your hare."

Current lay programs for compiling a new medical condition for the United States are based upon the initial fundamental of

"First destroy your doctor and annihilate the rational progress of scientific medicine."

Unfortunately the general public, long the goat of political bosses, is now made the guinea pig for these lay experimenters in medical economics.

The anesthetic these dabblers in economics flourish is a pretended alarm over the meager incomes obtainable now by the bulk of physicians. They are going to uplift, are these makers of hare soup without the hare,—uplift the doctor and his rights and necessities be damned.

The scalpel with which these uplifters plan to do their murderous task is our old friend Compulsory Health Insurance. One endowed philanthropy (?) proposes this tax-supported injustice as an improvement in medical practice.

Exactly how sure the politicians are that this socialistic practice can be put into effect is the statement by Harry L. Hopkins, Federal Relief Administrator, that compulsory health insurance could now, by a bold stroke, be put into effect "in the next eighteen months." He calls it "carrying the American people along"—which sounds a bit like taking them for a ride, or the parable, only this time it is the guinea pigs who constitute the public of Gadarene swine, headed for the precipice.

At a joint meeting of the American Academy of Political and Social Science and the College of Physicians of Philadelphia (February 7, 1934) a frank avowal as to the objectives of such organizations as the Twentieth Century Fund, the Milbank Fund and the Rosenwald Fund came from no less an expert in his line than Michael Davis of the Rosenwald Fund.

The Editor of the *Journal of the American Medical Association* says, a large part of Mr.



Davis' activity consists in efforts to attack medical leadership and to undermine organized medicine as it endeavors to function in behalf of the medical profession.

Living under a system characterized by a most vicious distribution of wealth and a grossly unequal ability to pay for essentials, much less luxuries, yet the uplifters wish to socialize the medical profession first of all in order to palliate this state of affairs instead of abating the factors that make for poverty, the cause of so much illness; and by mass-production methods at a time when individualization of the sick human being was never so necessary and so highly developed. Who, under socialization, would spend hours psychoanalyzing a patient?

William Trufant Foster, an economist of Newton, Massachusetts, makes the suggestion that there is great folly in burdening physicians any longer with business affairs which they have notoriously mismanaged, for which they are not trained, in which they are not interested, and which interfere with that single-hearted devotion to patients which is the glory of the profession. Herein the doctor himself is rated as an imbecile.

This editor is inclined to agree with a fraternity brother in the East, Dr. Samuel Horton Brown, Editor of the *Weekly Roster and Digest*, organ of the Philadelphia County Medical Society, who says that these wild men of the sociologic council, seldom in contact with the sick, ask us to listen attentively to them while they give us directions for the care of the sick. These wild men, says Dr. Brown, are temporary workers in the field holding fat jobs which require them to be articulate in the blah which they spatter upon the medical profession, which profession is composed of permanent workers on a very large scale in this field who have done far more than merely prescribe for the sick.

Dr. Brown suggests that the time is rapidly approaching when there will be an unequal distribution of sociologists, and he asks wickedly whether the sociologists will then entertain any proposals from outside for a change in their procedure. In any case, he concludes, the Marx brothers are now putting up a much better show than these sociologists' groups, and it is a relief to watch the one who is a mute.

## THE OLD FASHIONED FAMILY PHYSICIAN AN EXCELLENT THING TO FALL BACK UPON

Discovery by the general public that a general practitioner is a pretty wise man and an old fashioned family physician an excellent thing to fall back upon. Also that a great deal of treatment can be had quite competently in the home.

Discovery by the specialist that general practice is a scientific necessity and also an ever present help to all humanity, even including the specialists. Also that the general practitioner has less overhead, and greater contacts.

The general practitioner has on the average really fared so much better economically, during these lean years that more than one specialist or consultant has ceased to sit in his office, doing literally that, and has gone out to take the air and to care for sick persons by making house calls.

Medicine at least has had some of the old order of sanity and science restored by the depression. Which is as it should be, for this is all bound to re-emphasize the importance of clinical training, of late years far too much neglected.

The real restoration of the doctor must begin, however, in the medical school.

As Dean Lewis of Baltimore says ably "he should know how to make a diagnosis; know the natural course of disease and how to observe it and he should know what therapeutic measures should be instituted to meet the indication and when they are to be employed. During the past few years, emphasis has been laid on the laboratories. This was necessary because such rapid strides had been made in biochemistry, biophysics, bacteriology and the histologic examination of tissue. The laboratories have been obtained and now more stress should be laid on the clinic. More clinical material is required, for in modern medical teaching the technic of diagnostic procedures is no longer simply demonstrated; but they are learned by the students and practiced by the student until these procedures can be used independently. In teaching hospitals an endowment should provide the required number of free beds and the patient should be the patient of the student, who under strict supervision can assume charge. *This is not possible*

under any scheme in which the patient pays full or half rates. The medical training which many students now receive makes the doctor dependent on hospitals, laboratories, technicians, nurses, consultants and specialists. These distinctly influence the attitude of students and have a deciding influence in the development of specialism. Importance of physical examinations cannot be overemphasized, for the student of medicine who observes well, percusses well, hears acutely and feels intelligently has advanced far in the way of diagnostic ability. With a due apportioning of diligence, the essentials of anatomy, physiology and pathology can be mastered. During the brief years of pupilage the details of the various branches cannot be grasped so that all cases can be accurately diagnosed and successfully treated. A deep knowledge of pathology is the foundation stone of diagnostic ability. Every effort should be made to bring these practitioners into contact with hospital facilities. Unfortunately, at the present time many of these men from the day they begin practice are excluded from hospital services. The medical profession is largely to blame for the development of specialism and the eclipse of the doctor, for during the past few years the patient has been educated to believe that the specialist is the last word, and as a result patients consult specialists first rather than the doctor. The licensing of specialists or the recognition of certain qualities which specialists should have will limit considerably their number and increase the number of doctors."

Note, if you please, the excellently based protest against the full or part pay clinic.

### MISLEADING MATERNAL MORTALITY STATISTICS

For years the ILLINOIS MEDICAL JOURNAL has been pounding away to disintegrate the false premise set before both the profession and the laity through the misleading tables of maternal mortality statistics, that afford such fertile fields for biased and factitious economists.

Disregarding the basic truth that every nation, and in fact, practically every community, has its own classification as to what constitutes "maternal mortality," a group of pseudo-scientists and yearning uplifters attack this question of maternal mortality upon groups of figures lacking entirely a single great common denominator.

Until the same yard-stick is applied to the measurements of all figures, from all nations and from all communities, it is plainly evident that in this question of "maternal mortality statistics" figures can and do lie with the greatest of ease and of inaccuracy.

To evidence this inaccuracy when it comes to international comparison, a very comprehensive citation of findings compiled from statistics issued by the Children's Bureau of the Department of Labor and other sources appeared under date of June, 1934, in *American Medicine*, under the caption, "Maternal Mortality Statistics."

By permission of the Editor of *American Medicine*, this article is herewith reproduced. We quote:

"The general practitioner has been raked over the coals by the report on Maternal Mortality issued by the Section on Gynecology and Obstetrics of the Academy of Medicine. The report ascribed 61% of maternal deaths to the negligence of the attending physician, and has paved the way for numerous unjust criticisms directed against the general practitioner, published in the sensational lay press.

"What does a careful examination of maternal death statistics reveal? It shows, in the first place, that statistics are valueless unless the same standards of tabulation are applied to all countries. In this country the number of maternal deaths is tabulated by the Census Bureau, and the results are published by the Children's Bureau of the Department of Labor. In 1926, they issued a report known as Publication No. 158 and entitled 'Maternal Mortality' by Robert Morse Woodbury, PhD. On page 58, he makes this statement: 'a detailed study of the results of applying the United States instead of the English rules to the deaths in England and Wales in 1920 indicate that the rate in England and Wales would have been increased by about 15% if the United States rules had been applied.'

"In 1920 the deaths incidental to childbirth in the United States were 7.99 per 1,000 women who survived confinements. In England and Wales they were 4.33 per 1,000. Adding 15% to the latter brings it up to 5 per 1,000. This still brings our statistics three per thousand higher than those of a theoretically comparable country. Why the difference? The difference is partly due to our large negro population, who are poor maternal risks owing to contracted pelvises from rickets, incidence of venereal disease (very high in the negro race) and poor state of general hygiene. In 1921, the maternal mortality of white women in this country was 6.6 per 1,000 births, and of negroes was 10.8 per 1,000.

"Another reason for the theoretically high rate of maternity mortality in this country is the large number of abortions performed in this country and the fact that our statisticians in Washington draw no distinction between deaths during natural confinements and deaths



arising after abortions. Many women attempt to perform this operation upon themselves. The hazard is so great as to be equivalent to committing suicide. Others have the operation performed by law-breaking physicians or midwives. The risk is still great. Dr. Julius Levy, Director of the Division of Child Hygiene of the Newark Health Department, investigated all maternal deaths in Newark in 1924, 1927 and 1928, and came to the conclusion that in the cases he investigated, abortions caused the maternal deaths in 20% of all cases of maternal deaths and in 60% of those dying within the first six months of pregnancy. These figures are startling and show us the valuelessness of our present methods of recording maternal deaths. As these deaths do not form any part of the normal hazard of giving birth to children and should be tabulated separately. A legitimate practitioner does not perform abortions except in a small minority of cases where it is necessary to save the mother's life, when it becomes legal to do so. An abortion is performed only after a consultation with a reputable physician who concurs in the fact that such an operation is imperative in order to save the mother's life. To saddle the medical profession with the blame for mortality from operations done by the patient herself or the outlaws of the profession is manifestly unjust. Dr. Dorothy Reed Mendenhall in another investigation showed that in 1927, 1,256 maternal deaths occurred in seven states investigated, and 299 of these deaths or approximately 25% were due to abortions. A proper correction of our maternal mortality rate would show that while it is not the lowest in the world, it is less than the average of all countries.

"The lowest rate seems to be in the Scandinavian countries, and because abnormal cases are extremely rare, and the women thus are better risks. A contracted pelvis in those countries is most exceptional. Operations become unnecessary. Pain is less. Shock is less, recovery being uneventful. Any operation has a certain element of risk.

"Pages 25 of the U. S. Department of Labor Bulletin entitled 'Maternal Mortality' admits that no distinction is drawn between deaths from septic full term confinements and deaths from infected abortions.

"The medical profession is striving in every way to reduce the maternal mortality rate to as near zero as possible. This can be brought about only with the co-operation of the patient, classified as good, fair and poor risks. Good risks are normal healthy women and have uncomplicated confinements even if confined by midwives. Most American midwives have a training far inferior to that of European midwives. Especially the negro midwives have no scientific training whatsoever. The untrained midwife is another factor swelling our maternal mortality statistics.

"Fair risks may frequently be converted into good risks by prenatal care. Heart trouble, kidney trouble, diabetes, and venereal disease may all be much mitigated before delivery. These cases are well taken care of by any good general practitioner who has supplemented his medical education by a few months of obstetrical training in a hospital.

"The poor risk should be diagnosed early in preg-

nancy by the general practitioner, and promptly referred to a specialist if necessary. These cases include marked degrees of contracted pelvis, probably requiring a Cesarean operation (slight degrees of contracted pelvis are very frequent and are properly handled by the general practitioner), toxemias when severe enough to threaten eclampsia, and certain hemorrhagic conditions readily recognized by any good practitioner.

"American methods of gathering statistics are largely to blame for our supposed high rate of maternal mortality. The family physician handles the majority of confinements, and handles them well, and is almost invariably underpaid. In most cases, the physician's fee is well within the people's means, is very moderate, and usually the physician is able to collect only part of his fee, or none of it. Many physicians refuse confinements on account of the smallness of the fee charged by their competitors, in no way commensurate with the work or responsibility involved. A confinement should be considered equivalent in responsibility to an appendix operation. Small fee does not excuse careless work upon the part of the obstetrician, but it might cause some of our better trained men to refuse cases.

"The New York Obstetrical Society disagrees with the report of the New York Academy of Medicine. It would have been wiser for the Academy of Medicine to have made constructive suggestions for lowering the mortality rate, rather than destructive criticism. Why was the report sent to the lay press? The Academy should have issued a booklet to the members of the medical profession, giving recommendations such as:

"1. Proper prenatal care.

"2. Proper aseptic technique.

"3. Avoidance of meddlesome obstetrics. Instrumental deliveries not to be performed unnecessarily.

"4. The dangers in the use of pituitrin.

"It will be noted by the reader that the maternal mortality of New York City, in the report, is 5 to 1,000, while in the country at large it is 7 to 1,000. New York City, in spite of the severe criticism given in the report, compares favorably with most European cities.

"The conscientious physician welcomes constructive criticism so that the maternal death rate would be lowered to an irreducible minimum (a certain number of deaths will always be inevitable because of a definite hazard in bearing children, especially in instrumental cases. The prospective mothers should engage the family physician with confidence, instead of being frightened away from him, to the large medical centers, already monopolizing too much practice. There is no criticism of the manner in which obstetrical cases are conducted in the large hospitals. The aseptic technique and skill are above criticism. However, the family physician is qualified to conduct 90% of obstetrical cases, and can maintain an equally good technique under equally good conditions. If hospital care is preferable to home care, we would suggest that any physician in good standing be given the privilege of conducting obstetrical and medical cases in any hospital. Surgical privileges should also be accorded to those with proper training. The proposition of the closed hospital (found

only in our large cities) is the cruelest injustice ever perpetrated against our long suffering profession. How much longer are we going to permit it?"

#### EXTENT OF RETENTION OF INGESTED ALUMINUM

According to the experiments of E. W. Schwartz, Gerald J. Cox, Richard B. Unangst, F. J. Murphy and Helen B. Wigman, with the assistance of W. H. Bradley and R. C. Uhlig, Pittsburgh (*Journal A. M. A.*, Nov. 25, 1933), the aluminum content of fresh tissues of guinea-pigs receiving no added aluminum is about 0.4 part per million or less. The carcasses of growing guinea-pigs on a diet containing no added aluminum have a higher content of aluminum than those of the adult animals. The feeding of large amounts of soluble aluminum salts produces a barely detectable deposition of aluminum in the soft tissues (less than 0.5 part per million) and somewhat larger amounts (from 0.5 to 1 part per million) in carcasses. No systemic pharmacologic effects can be ascribed directly to absorbed aluminum. Aluminum does not appear to be cumulative in the tissues. No harmful effects can be expected from soluble aluminum occurring naturally in foods or introduced by utensils into a diet of normal phosphorus content.

#### BLESSED BE THE OLD-FASHIONED MOTHER!

Thank God, some of us have an old-fashioned mother. Not a woman of the present period, not one that is hand-painted and enameled, with all her society manners and fine dress—whose hands, white and jeweled, never felt the clasp of the dimpled baby fingers, but caresses a bulldog instead. But a dear old-fashioned mother with a sweet voice, eyes into whose clear depth the love light shines, and whose brown hair, just threaded with silver, is lying smooth upon her faded brow. Those dear hands, worn with toil, gently guided our steps in childhood and soothed our cheek in sickness, ever reaching out to us in yearning tenderness and love. Blessed is the memory of the dear, old-fashioned mother. It floats to us like the beautiful perfume of God's grandest blossoms. The music of other voices may become lost and forgotten, but that sublime, radiant and enchanting memory of her will echo in our soul forever. Hurrah for the old-fashioned mother! She doesn't need the help of two brakemen and a conductor to get in or out of the cars. She wears a dress, not an unsightly bag.—*D. A. Anderson.*

#### PAROXYSMAL TACHYCARDIA

In 3 cases of paroxysmal tachycardia, a high-fat diet, supplemented with acids (and in one case with whiskey), maintained an acid urine and lessened the incidence of attacks of paroxysmal tachycardia.

The acid medication was either 5 grs. of acetylsalicylic acid 4 times a day, or 10 drops of dilute hydrochloric acid before meals, 3 times a day.—*Dr. Jas. C. Healy, in New England J. Med., Nov. 19, 1931.*

## MEDICAL ECONOMICS

### FACING THE ISSUE

Some say we live in a great age. Others that we live in a machine age. Still others designate our age as modern and that the old has no place in it; and some think of this age as one of speed. Then there are those who classify this age as one depending on change. That it is a strange and uncertain age most all are agreed.

If one is a bit critical, he could well designate it an age controlled largely by fear, refusing to face the issues of the day and finding much to support his argument. That our age is a combination of all these elements there is no denying. The question remains to be answered, why do we not reduce our wrongs, correct our mistakes and gather unto ourselves the good that advancement in knowledge and skill has produced and made ready for our use?

We do not live in an age of famine but in a harvest of plenty, for never was there a time in the history of the human race when the essentials of life were so plentiful and so easy to produce, and yet we live in want of the good. We live in an age of almost ultra-educational advantages and scientific attainments, yet we are unable to reduce our learning to a common denominator of human benefits. We willfully and knowingly wreck the great things of life and stand crying before the wreckage our own strength and knowledge produced.

We are not satisfied in wasting the good of our own generation but in our egotism we deny the good of the past and draw a curtain of old fogism between the past and present and expect a great future instead of drawing the straws of good of the past through the present and connecting the future.

The medical profession is only one part of the great program of human endeavor. It has no right to any special place only in so far as it makes a place for itself. This it has done through the efforts and sacrifices of those who have gone before us.

The medical profession has no right or reason to obtain or demand anything for selfish purposes and as far as the public is concerned the profession has met the obligation, but in our relations one to another have we been as unselfish as we should? I fear not and this is the reason for our economic troubles today. We do not need to learn how to win from one another,



to cheat or even compete. What we need to know is how to live with one another in a land of plenty. There is no need of these things. There is, however, a need of closer contact and a willingness to stand by our ethics that the world may realize we are worthy of our hire.

We are complaining more about our economic condition than we are honestly and fairly working to right it. All that is wrong with our economic structure we permitted to be. What we need is the courage to face the issue and make right our wrongs. They are our problems to solve in a medical way and can only be solved by us of the profession. Only physicians can understand medical economics for our economic problems have little in common with business economics. Economics, as they relate themselves to the practice of medicine are not a science but a problem. Like a man's stomach, as long as he is not conscious of having one it is all right. It is only when it hurts that he knows he has a stomach. So it is with medical economics.

We, as a profession, have gone with business and trade through an abnormal period of prosperity. We have enjoyed the luxury that went with it and we have permitted a bit too much commercialism and selfishness to creep into our professional lives. There was a great opportunity during this period to do this unnoticed and we must not be blamed for this too much as it was human, but we can be blamed if we insist on keeping these faults that do not belong to us.

The scenes have shifted. Over-values are gone and the world stands in need. We must readjust our economics to fit the pattern of modern change and make them harmonize with the day in which we live. Our greatest need, as we see it, is the need of the things we formerly had in those days of false prosperity. If we wanted these to continue we should have saved more of the money we made and more wisely invested what we did save. We have placed this false need in front of us and have become victims of fear, due to a dread of what we consider a desperate need. The instinct of self-preservation has returned within us paralyzing our reason and we have permitted conditions to enter our profession that have no place within our ranks.

Let's not lend an ear to the prophets of disaster and despair and cast aside the calm sense of reasoning that has been ours in the past. We must meet the new order with a profession

equipped to meet the medical needs of the public and our economics will adjust themselves to this new order if we will only remain true to ourselves.

Organized medicine has the intelligence to meet its economic problems. It only remains to use this intelligence in the right way. It has been said that nine-tenths of wisdom is knowing when to use it. Let's redeem ourselves from selfishness and fear, meet our issues with medical sense, with the full knowledge that the world cannot exist without doctors, that within our profession is the power to lift all undesirable problems without and still strength remains to carry on, without a tinge of the feeling of weakness.

I have no fears of the foes without. My fear is of the foes within. Let no man in the medical profession become so big that he can harm organized medicine and our issues are met face to face and will be solved to the good of all, remembering that medical economics does not have for its base the dollar but patients well served medically and well pleased with their doctor.

CHARLES S. SKAGGS, M. D.

President, Illinois State Medical Society.

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#### INCREASING WEIGHT OF THIN PATIENTS BY INSULIN

Four thin patients gained weight rapidly following the administration of insulin. As a result of the treatment there was a great increase in the appetite.

The treatment is begun by administering 3 units of insulin subcutaneously every 3 hours. The patient should eat liberally  $\frac{1}{2}$  hour to  $\frac{3}{4}$  of an hour after the injection to avoid insulin reaction. The dose of insulin is gradually increased until 10 units or more are injected every 3 hours. The insulin is discontinued when normal weight is reached.—Drs. L. H. Nahum and H. E. Himwich, of New Haven, Conn., in *Am. J. Med. Sc.*, May, 1932.

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#### STEINACH THERAPY

From the endocrine point of view, the Steinach operation (vasotomy and ligation) could be called the opposite of castration. . . It adds life to the years, not years to the life.—Dr. Harry Benjamin, in *Am. Med.*, Dec., 1932.

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#### LIVER IN ANEMIA

A case of primary anemia, which failed to respond to both liver extract and ventriculin, responded satisfactorily to the juice of whole liver.—Drs. H. A. Freund and A. E. Price, of Detroit, in *Ann. Intern. Med.*, May, 1932.

## Correspondence

### BEG YOUR PARDON!

In the issue of the ILLINOIS MEDICAL JOURNAL for October, 1934, appeared without due, accurate, and proper credit to *American Medicine*, reproduction of the bulk and the substance of a statistical article upon "Maternal Mortality Statistics." This patently unintentional offense occurred through an oversight in the proof-reading which failed to correct the omission by typographical error of the credits to *American Medicine* which appeared in the original copy furnished the printer. We apologize.

### SOCIALIZATION OF THE PRACTICE OF MEDICINE

During the next session of Congress legislation for the socialization of the practice of medicine through the passage of a health insurance law similar to that now in force in Britain, will come up. A bill is now in the making which will be revolutionary in nature and is expected to be passed as an emergency measure. The member of Congress from your district needs to know your thoughts regarding this legislation and it is your duty to properly inform him NOW. Here is our view in this matter.

What we need in our lives is a creed, not just a code. The health insurance law, as now in force in England makes a sham and mockery of the practice of medicine. It is pauperizing to the public, degrading to the medical profession and extravagant to the nation. It is not practical and though it may be enforced by the authority of the government it is not satisfactory to any one and cannot endure.

It pauperizes the public by encouraging indolence with the most trivial of illnesses and injuries, by contributing to malingering through inviting the individual to magnify his incapacity to work, to feign suffering or deformity, and to conjure up ailments through which he can evade work. Any executive of a penal or charitable institution can testify to the unbelievable lengths to which inmates will go to avoid the usual routine duties of the establishment.

It degrades the physician by tempting him to always diagnose serious ailments which will require prolonged, constant and frequent attentions. He will be more concerned with the num-

ber of times he attends his patient than with searching out and removing the causes. He will extend himself socially rather than studiously because "midnight oil" will be unprofitable. The hale fellow will prosper and the thinker will starve.

It will be extravagantly expensive by occupying the doctor's hours with minor ailments which can very well be cared for by domestic remedies, filling his waiting room with semi-social callers who consult the doctor frequently because it doesn't cost anything, and by schemers who will connive with the doctor, or intimidate him, into certifying to a length of illness beyond what actually exists. Lastly, socialization of the practice of medicine will enroll an army of civilians for clerical and statistical work whose regulations and routine delays will seriously handicap emergency medical and surgical work thus jeopardizing the patient's convalescence and at times his life.

National health insurance as now practiced in Britain is the despair of every one and the comfort of none. It is a burlesque on the scientific practice of medicine, a violation of every traditional, ethical and progressive tenet. Were not the results so lamentable, the comedy would be laughable. It is the chagrin of every honest physician who labors to give relief to suffering mankind and a disappointment to those seriously sick who do not appreciate the trickiness of the whole plan. Its adoption would be a definite setback to public health and therefore we view it as a "something for nothing bait." *If you have any stamina tell your Congressman what you think.*

Public Relations Committee.

### STATUS OF THE AMERICAN SOCIETY OF TRAUMATIC MEDICINE AND SURGERY

Chicago, Ill., May 8, 1934.

*To the Editor:* Representatives of the Insurance Medical Directory, Inc., have recently solicited surgeons in and about Chicago to assist in the organization of a Society to be known as the "American Society of Traumatic Medicine and Surgery."

It is proposed that 100 surgeons throughout the country become charter members of this proposed organization. These men would all receive



their membership in the organization free of charge "as and when the same shall be organized," and the remainder of the members were to pay a certain sum per year for their membership, "which said sum shall entitle me to registration in the directory of the Insurance Medical Service, Inc., and to all publications of the *Journal of Traumatic Medicine and Surgery*, without further cost."

The Insurance Medical Directory has already been published with more than 500 names of surgeons included in the directory. Several of the surgeons whose names are included have never authorized the use of their names in that directory. Representatives of the Insurance Medical Directory, Inc., are now soliciting names of other physicians and surgeons to be included in this directory at the rate of \$25 the first year and at the rate of \$10 per year thereafter.

In the case of some of us whose names appear in this directory, free of charge, we do not feel that the presence of our names therein should be used by salesmen to influence other physicians and surgeons throughout the country to pay out \$25 to have their name included in the directory. As one surgeon put it, when he phoned one of the undersigned, inquiring about the directory—"There are some imposing names in that directory, and for that reason I would like to be in it; but I don't want to pay \$25 to get in it and \$10 a year thereafter to stay in it unless you advise me to do so."

Because of the above facts the undersigned surgeons felt that the medical profession of the State of Illinois should be informed concerning their position with regard to this proposed organization which is as follows:

1. The organization of an Association to be known as the "American Society of Traumatic Medicine and Surgery" is not needed.

2. If a National Traumatic Association is ever to be organized, it is the function of surgeons, and not a lay organization, to develop such an organization.

3. The present plan of the Insurance Medical Directory to organize such a society and to collect membership fees from physicians and surgeons throughout the country is condemned by the undersigned.

4. None of the undersigned have authorized the above corporation to use their names in their campaign to organize the above mentioned so-

ciety. Furthermore, the undersigned demand that the use of their names in this connection cease at once.

*Signed:* PHILIP H. KREUSCHER,  
HARRY E. MOCK,  
WM. CUBBINS,  
GEO. G. DAVIS,  
LEROY P. KUHN.

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#### ILLINOIS DEPARTMENT RESERVE OFFICERS ASSOCIATION DESIRE CO-OPERATION

Office of Vice-President,  
Illinois Department, R. O. A.  
Federal Building,  
Rock Island, Ill.

October 1, 1934.

*To the Editor:* As the Vice-President of the Illinois Department Reserve Officers Association, I have been assigned the duty of membership. There are no doubt many medical corps officers in the state of Illinois who have not been properly approached or properly advised as to the function of the Reserve Officers' Association and hence are not in the organization.

The Illinois Department R. O. A., will appreciate any assistance which you may be able to render in the matter of securing all medical corps reserve officers as members of the R. O. A., and I wish to thank you now for your help in making this an accomplished fact not only through your letters to members but through resolution presented to your state society when it regularly convenes.

W. T. STEVENSON,  
Major, Engr-Res.,  
V. P. Ill. Dept. R. O. A.

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#### IN DEFENSE OF THE INSURANCE COMPANIES

September 22, 1934.

*To the Editor:* In the September issue of the ILLINOIS MEDICAL JOURNAL I noticed a letter by Ray B. Essick (I presume of Illinois) entitled "Another Chiseling Insurance Company."

I grant that a rather ambiguous situation is presented, and yet some reason can be seen for the same from the insurance company's standpoint.

Section 42 (b) of the Illinois Motor Vehicle

Act, by an amendment approved July 2, 1931, provides as follows:

"Provided, however, that no person riding in a motor vehicle as a guest, without payment for such ride, nor his personal representative in the event of the death of such guest, shall have a cause of action for damages against the driver or operator of such motor vehicle or its owner or his employee or agent for injury, death or loss, in case of accident, unless such accident shall have been caused by the wilful and wanton misconduct of the driver or operator of such motor vehicle or its owner or his employee or agent and unless such wilful and wanton misconduct contributed to the injury, death or loss for which the action is brought.

"Nothing contained in paragraph (b) of this Section shall be construed to relieve a motor vehicle carrier of passengers for hire of responsibility for injury or death sustained by any passenger for hire."

I take it from Dr. Essick's letter that the injured persons were occupants of the car driven by the person assuring the doctor that he would be remunerated.

Under the above Section the State law of Illinois provides against liability on the part of the car owner or driver. There is an exception to this general rule which most insurance companies make, in a provision somewhat similar to the following:

"The company does hereby agree to pay irrespective of the limits expressed (elsewhere in the policy) the expenses incurred by the insured in providing such *immediate* surgical relief as *is imperative* at the time of any accident covered by this policy."

This probably is put in as a protection to the insurance company to cover the general case so that for lack of immediate attention a much greater loss might not be suffered. This provision in the contract thus provides for payment when immediate surgical (not medical) attention is necessary, and does not restrict it to those not riding in the insured's car. This causes the ambiguity that if immediate surgical attention is imperative the insurance company will pay for it, even though the injured are occupants of the assured's car, but if not imperative that such surgical attention be immediate—or even if it is better that it be delayed for several days—then the State Law does come into effect that the occupants of a car cannot recover from the driver or owner.

Furthermore, it must be remembered that in a liability insurance policy the contract is to protect the insured, not to provide accident insur-

ance for any person who may be injured by riding in or because of a collision with the car insured.

GLENN A. TREVOR, J. D.

#### STATE AUXILIARY ORGANIZATION

Mrs. A. B. Middleton,  
Chairman State Organization Committee,  
Pontiac.

Realizing the importance and the necessity of a united effort upon the part of the medical men as well as the wives of medical men in the State of Illinois to combat the vicious medical legislation that is being proposed and will continue to be proposed, it is absolutely necessary that the largest and most perfect organization possible be effected at an early date by the wives of medical men of this state, in order that we will be in a position to offer valuable help to our husbands in case the occasion should arise.

It is a pleasure to realize the almost unanimous co-operation among the Medical Societies of this State, proven by the replies to contact letters that have been sent from the State Organization office.

Medical Auxiliaries are being organized all over the state under the direction of the various District Councilors. Judging from the present interest that is being taken, by the time we hold the state meeting in Rockford this year a large percentage of the active Medical Societies will have an active Medical Auxiliary.

It is hoped that if there is a Medical Society which has not given their ladies an opportunity to organize that they will do so at their next meeting in order that their wives will be eligible to attend and take part at the next meeting in Rockford.

#### LEE COUNTY ORGANIZES AN AUXILIARY

Mrs. W. T. Holladay,  
Amboy.

The wives of the members of the Lee County Medical Society met with their husbands at dinner in the Colonial House, Grand Detour, on Tuesday evening, October 2.

Following the dinner the ladies adjourned to meet with Mrs. Lucius Cole, State President of the Woman's Auxiliary, and Mrs. J. P. Simonds, Corresponding Secretary. Mrs. Cole presided and the question of organization was discussed pro and con after Mrs. Cole had presented the whys and wherefores of organization.

A vote taken for organization was unanimous. The following officers were elected:

Mrs. W. T. Holladay, Amboy, President; Mrs. W. A. McNichols, Dixon, Vice-president; Mrs. David Murphy, Dixon, Secretary and Treasurer; Mrs. C. A. Robins, Dixon, Historian.

It was voted to have the dues one dollar a year for the present. Following this action, the meeting adjourned. There were eleven ladies present at the organization meeting.



## McHENRY COUNTY ORGANIZES AN AUXILIARY

Mrs. F. L. Alford,  
Crystal Lake,

September 27, the wives of the Doctors of McHenry County met and organized. Mrs. A. B. Middleton of Pontiac, State Organization Chairman, was our speaker.

The following officers were elected: Mrs. Frank L. Alford, Crystal Lake, President; Mrs. C. F. Baccus, Woodstock, Vice-president; Mrs. J. C. Sculley, Algonquin, Secretary and Treasurer; Mrs. H. J. Schmidt, Harvard, Historian.

## EDUCATIONAL COMMITTEE

*Report for October, 1934*

### SPEAKERS' BUREAU:

- 61—Doctors presented popular health talks before lay groups. These included the lectures at A Century of Progress, two talks before public health chairmen attending a regional conference of the Illinois Federation of Women's Clubs, two high school assemblies, and the usual number of men's and women's clubs and Parent Teacher Associations.

Comments indicate that these programs were satisfactory and interesting: "Splendid talk made and our members were very much interested." "We learned much as the talk was so different from the so called 'common run' of talks."

- 23—Radio programs given by members of the Chicago Medical Society from stations WGN, WAAF, WJJD.

### SCIENTIFIC SERVICE:

- 24—Speakers scheduled to present scientific papers before medical societies.

### COOPERATION WITH COUNTY SOCIETIES:

- 215—Postal card notices sent to doctors re Perry County Medical Society meeting October 4th.  
145—Postal card notices for Medical Woman's Association.  
12—Notices to Chairmen of Public Health Illinois Federation of Women's Clubs.

Special publicity Jackson Park Branch public meeting:

- 750—Cards sent to Parent Teacher Association Presidents and Secretaries.  
370—Letters sent to Women's Clubs.  
65—Letters sent to ministers enclosing announcement of meeting.  
350—Notices sent to south side hotels.  
22—Notices to south side libraries.  
13—Notices to south side newspapers.

### LIBRARIES

- 180—Press articles on popular health topics to Chicago Branch Libraries.  
256—Articles to libraries outside of Chicago.  
4—Articles to Red Cross Headquarters in Chicago.  
4—Articles to Y. W. C. A.

### SERVICE TO WOMAN'S AUXILIARY:

- 360—Notices of Woman's Auxiliary meeting—November 7th.

- 275—Letters to Chicago Medical Society Auxiliary members.

- 50—Notices of Board meeting of Woman's Auxiliary, Illinois State Medical Society.

- 100—Copies of Agenda of Board meeting October 20th.

- 325—Revisions for Woman's Auxiliary, Illinois State Medical Society.

### NEWSPAPER SERVICE:

- 20—Articles to newspapers using monthly health column.

- 446—Regular releases to newspaper using daily or weekly column.

- 87—Releases to newspapers re Southern Illinois Medical Association.

- 6—Releases to metropolitan newspapers re Chicago Medical Society meeting, October 24th.

- 28—Releases Chicago newspapers re public meeting Chicago Medical Society, October 17th.

- 34—Releases to newspapers re Pike County Medical Society meeting, October 25th.

- 6—Releases to newspapers re Chicago Medical Society meeting, October 10th.

- 6—Releases to newspapers re Calumet Branch Chicago Medical Society meeting, October 19th.

- 2—Notices re North Side Branch meeting of Chicago Medical Society, October 8th.

- 106—Notices Tri-County Medical Society meeting, October 18th.

Press articles were written and approved on the following topics:

- Pulmonary Tuberculosis Is Increasing.  
Some Causes of Ear Ache.  
Round Shoulders.  
Water as a Dietary Factor in Health.  
Tuberculosis—A Family Disease.  
The Ability to "Take It" a Matter of Health.  
Vitamin C Deficiency.

### MISCELLANEOUS:

- 1500—Cards sent to women's clubs and other groups announcing special popular health program sponsored by Chicago Medical Society.  
206—Letters sent to Secretaries and Presidents of County Medical Societies enclosing list of suggested topics for medical programs.  
25—Package libraries furnished doctors and laymen.  
JEAN McARTHUR, Secretary.

## LILLY RESEARCH LABORATORIES FORMALLY OPENED

More than a thousand investigators and research workers were present at the formal opening of the new Lilly Research Laboratories at Indianapolis on October 11. The gathering of distinguished visitors representing many noted bodies and famous institutions in this and foreign countries as well, assembled in a mammoth tent erected for the occasion adjacent to the Lilly Laboratories.

At the formal opening exercises, Eli Lilly, head of the Lilly organization, presided as chairman. Mr. J. K. Lilly, chairman of the board of directors, spoke on

"Research in Manufacturing Pharmacy" from 1876 up to the present, when there is so much evidence of the fact that medical science, in becoming an integral part of our social structure, has, in turn, become in a broad measure dependent upon industrial development.

Dr. Irving Langmuir, director of research for the General Electric Company, discussed "The Unpredictable Results of Research." Sir Frederick Banting talked on "The Early History of Insulin." He gave an account of the early experiments conducted by Dr. Best and himself which first demonstrated the existence of Insulin.

Sir Henry Dale, director of the National Institute for Medical Research, London, and secretary of the Royal Society, spoke on the "Ideas in Medicine and Biology."

#### A GUIDE FOR THE TUBERCULOSIS PATIENT

The Illinois Tuberculosis Association has recently announced the publication of a small booklet entitled, "A Guide for the Tuberculosis Patient." This booklet is available free of charge to physicians in the State of Illinois through the County Tuberculosis Associations affiliated with the Illinois Tuberculosis Association.

The Guide was edited by Dr. Robinson Bosworth of the Rockford Municipal Tuberculosis Sanatorium, and Dr. D. O. N. Lindberg of the Macon County Tuberculosis Sanatorium. It was prepared primarily for the patient who finds it impossible to go to the sanatorium. It gives certain rules to be observed by that patient under the direction of his or her family physician.

According to W. P. Shahan, Executive Secretary of the Illinois Tuberculosis Association, this Guide is not considered to be a substitute for sanatorium care. He says it was prepared to meet a very definite need among the many patients in Illinois who are unable to receive sanatorium care and who must take the cure at home. Mr. Shahan requests that any physician who cannot get a free supply of these booklets from his local County Tuberculosis Association, advise the Illinois Tuberculosis Association, Security Building, Springfield, Illinois, immediately.

#### THE EXTENT OF SICKNESS

"There are about one hundred million cases of sickness among the people of the United States every year. Some cases are serious, some are trivial. Altogether they cause not only suffering, but also a billion-dollar loss of wages, and require about three and a half billion dollars for the costs of care.

"One hundred and fifty thousand physicians, 70,000 dentists, 200,000 nurses, 7,500 hospitals, 6,000 clinics and 60,000 drug stores are concerned with furnishing medical care and medicines. Five billion dollars are invested in hospitals, clinics, laboratories and in the private offices of physicians and dentists.

"The costs of medical care are of interest to every housewife who is trying to plan her family budget; to every man who is trying to pay his way while he is well and to meet his bills when he is sick; and to all

physicians, dentists, nurses, hospitals, social agencies and taxpayers."

#### MAYO FOUNDATION PROGRAM

A special program of lectures and demonstrations in medicine will be held under the direction of The Mayo Foundation from December 3 to 7, inclusive. Mornings will be devoted to surgery and dry clinics. In the afternoons and evenings medical and surgical subjects, including cardiovascular diseases, diseases of the nervous system artificial fever, roentgen and radium therapy, laryngology, oral and plastic surgery, gynecology, diseases of the endocrine glands and orthopedics, will be discussed.

While this program is arranged primarily for the Fellows of the Mayo Foundation, visiting physicians are invited to attend.

#### PULMONARY TUBERCULOSIS: RECENT TYPES OF OPERATION

Howard Lillenthal, New York (*Journal A. M. A.*, April 14, 1934), states that the cure of tuberculous cavities with their dangers of locally spreading the infection, of septic absorption or of mixed bacterial contamination and of further destruction of pulmonary tissue is the chief object of operative procedure. He feels that the day must come when a direct biologic attack on the bacillus of tuberculosis will result in the control and, perhaps, in the final disappearance of the disease, but at present one can hope only for an arrest of progress with cicatrization with or without calcification or ossification, which in ordinary circumstances prevents the continued advance of the malady. He divides the methods employed in the treatment of the disease into medical operative and biologic treatment and discusses the four main surgical procedures (extra-thoracic procedures, operations on the thoracic wall, transpleural operations not on the lung and attacks on the lung itself), used in pulmonary tuberculosis. He further states that tuberculosis as a disease is not amenable to surgical treatment but that anatomic conditions of a pathologic and threatening nature resulting from the disease may be treated by surgical procedures. The chief object is the obliteration of tuberculous cavities and the conservation of a healthy lung.

#### COST OF GOVERNMENT

It now costs 14 billion dollars a year to run the various governments in the United States.

In 1931, the gross income of all the farmers of this country—the sums received for all their butter, eggs, wheat, cotton, fruit, etc.—was about 5 billion dollars.

In the same year, the total of all the factory payrolls, large and small, in this country was approximately 5 billion dollars.

It would take all the gross income (not net earnings) of all the farmers and all the industrial workers in the United States to pay the present tax bills—and there would still be 4 billion dollars left, each year, for our children and grandchildren to pay.—*Committee on American Education.*



## Original Articles

### A MESSAGE TO THE WOMAN'S AUXILIARY—THE AGE OF NEW THINGS

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We are living in a new age. This expression is but little more than a decade old, yet it has been used so much that it is becoming old-fashioned. If we object to some custom or policy of our time, we are quickly reminded by someone that we are living in a new age. If we speak with regret of the loss of our former culture and respect of the fundamentals of life, we are again reminded that we are living in a new age. We are reminded of this so often that we are beginning to ask ourselves, are we living in a new age and if we are, what really is this new age. What is the difference between this new age and other ages and what will be the history of this age when written?

Every age, new or old, has had its good and its bad, but the age that has produced more good than bad is the age that contributes to the progress of civilization.

There is no doubt but that we have slipped in several of the essentials in the last two decades and this takes in much of this new age. If we enter economics, we find the roads unnamed and unmarked and no one is certain where he is going and no one can give directions to another.

Our social order is none too certain. Industry and labor seem to be in a wilderness of uncertainty. When we hold this new age up in front of us, we find ourselves searching for something that we might want to carry over into the age to come and we are a bit timid about picking out anything. There is a fear that what we select will not endure and stand the wear of time.

Medicine has faced this new age with a firm determination to stand by its traditions and ethics of the past, but the pressure has been so strong that it felt its strength weakening. Realizing this, organized medicine began casting its eyes about for something or someone who would supply the extra strength to hold against the force of this new age.

Some one had said that the doctor's wife was

the reserved strength of her tired husband. When the cares of his practice became too great for him to bear, her arms were always ready to take from him a part of the load. Someone began to think about this. If the doctor's wife was so great an aid to him as an individual and the doctor was a part of organized medicine why could not his wife become to organized medicine the same reserved strength that she was to her doctor. This thought glorified itself by bringing into being the Woman's Auxiliary.

It is an old and worthy saying that necessity is the mother of invention. The women's auxiliary is a necessity to organized medicine in these trying days through which we are going, knowing not where. It is one of the products of this new age and as organized medicine looks into this new age to take from it something that would help it hold its place, it selected the Auxiliary as something it believed would endure and stand the wear of time.

Organized medicine has faith in its auxiliary. It has a right to this faith and reasons to expect much from this added strength. It would be a tragedy if the woman's auxiliary failed to meet these expectations for organized medicine has turned over to it certain tasks that are not only important but necessary. If you don't do them they will not be done and if not done, no one can foretell the results and these results are not going to be good, but bad.

This new age has not produced a surplus of good. For this reason we cannot trust to luck to bring things about as we would have them be. Only careful thought that will direct united action can be depended upon. Such a statement may sound and appear over serious. It may be serious but not over serious. I am not one who believes that the woman's auxiliary is just another social order just to meet and seek pleasure. I am not one who would rob you of one moment's pleasure but if you are to have pleasure you must find it in performing the tasks assigned you, for you are in a new age.

If organized medicine fails to hold its lines, the rank and file of physicians are going to be forced into a position that is going to affect each home and in that home is the doctor's wife. Organized medicine believes in the sanctity of the home and the best and highest type of medical service in the home. It believes that each home

is entitled to have its family physician unhampered by politics or socialized medicine in any form or disguise. It believes in the free and independent right of the home to choose its physician and its right to earn enough to meet the medical expense. It believes in the right of the home and the family doctor to adjust its medical costs without the expensive aid of lay organizations and politicians who spend ten dollars of the people's money to save them a dime that they afterwards take from them because they saved it.

The Woman's Auxiliary has the task of carrying this message of organized medicine into every American home. It is not for me to tell you how you can do this, for this is another task that belongs to your organization. But you can't do it by not doing it. Bernard Shaw was asked what he thought hell was and he replied, "Idleness." If he is correct, then work must be heaven. It is going to take work to meet the problems that confront us and the Illinois Medical Society is asking your organization to redouble its efforts. You have done much and each physician in our state appreciates your work, but there is more to be done and none too much time to do it remains.

I would ask each member to let your state president know that you want to put on an extensive program this year and that each individual member and each county unit wants a definite task to do. The strength of your organization will be measured by the individual effort put forth. To do this effectively, you must be interested in your organization, which will give you a desire to be active.

We must regain our lost ground by pushing the personal onward and upward not only to old levels but to new levels. Our bests must be strengthened to new bests to make sure that the profession of medicine shall be what we want it to be.

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#### THE FUNCTION OF THE STATE DEPARTMENT OF PUBLIC HEALTH IN THE CONTROL OF PNEUMOCONIOSIS

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Pneumoconiosis is defined as lung disease produced by the inhalation of minute particles of solid materials which produce irritation resulting in fibrosis and induration. Inasmuch as the

Public Health Department functions largely in a preventive capacity, the term means to us literally a condition of "dusty lungs." When such a process reaches a stage in which organic changes are taking place in the lungs the case becomes a problem for therapeutic management. Unfortunately in many cases, particularly those of silicosis, therapeutic measures are of small value and the ultimate death rate from the occupational hazards is high. It is our purpose, therefore, to cooperate with the Department of Labor in the enforcement of a program that will have as its object the *prevention* of pneumoconiosis or at least the arrest of the process in workers before irreparable physical damage has been done. Our policy concerning industrial hazards and occupational disease, like that in other public health matters, must be governed to promote the welfare of the community in which these problems exist, and ultimately the welfare of the state at large.

The first legislation bearing on the control of occupational hazards was enacted almost forty years ago. At about that time a Bill was passed and approved requiring industrial plants to use blowers upon metal polishing machinery. Other measures were passed from time to time regulating the manufacture of certain products, and relating to labor laws.

Our present program of Industrial Hygiene had its beginning in 1907, by a joint resolution of the Legislature authorizing Governor Deneen to appoint a Commission on Occupational Diseases whose duty it would be to conduct an investigation of the existing industrial hazards and the conditions under which industrial employees were working. The commission in turn appointed a group of investigators who were particularly well qualified for work of this nature. It is of interest to note that this group included physicians (Emery R. Hayhurst and Alice Hamilton) who have since won international recognition for their contributions to the field of Industrial Hygiene. The work of these investigators brought to light a vast number of occupational hazards that had never been effectively dealt with. This investigation and other subsequent studies led to the passage of the Occupational Disease Law which became effective in 1911. Section One of this Act states in substance, *that every employer of labor in this state engaged in carrying on any work or process which subjects*

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Read before Section on Medicine at meeting of Illinois State Medical Society, at Springfield, May 15, 1934.



*the employees to the danger of illness or disease incident to such work or process, and to which employees are not ordinarily exposed in other lines of work, shall, for the protection of such employees, "adopt and provide reasonable and approved devices, means or methods for the prevention of such industrial or occupational diseases as are incident to such work or process."*

The next Section makes specific regulations for the control of definite hazards. Quoting, in part, from Section Two of this Act we find the requirement that "in all processes of manufacture or labor referred to in this section which are unnecessarily productive of noxious or poisonous dusts, adequate and approved respirators shall be furnished and maintained by the employer in good condition, and without cost to the employees, and such employees shall use such respirators at all times while engaged in any work necessarily productive of noxious or poisonous dusts."

Since the passage of this law there has been some progress in the control of hazards of this nature.

Early in the movement many manufacturers showed interest in the improvement of working conditions, and when convinced that certain changes would be a mutual advantage to employers and employees, some proceeded of their own volition to make the necessary changes. This tendency has grown as the years have passed, and today, court actions are few. It is a common thing now for manufacturing plants to present their problems to the State Departments concerned, and ask for a survey. They are given the services of persons who are qualified for such investigation.

Pneumoconiosis may be encountered in employees of numerous manufacturing processes. The principal trades in which excessive amounts of dust are produced are: the abrasive industry; all forms of grinding, foundry work, buffing, and sand blasting; the textile industries; in the heavy metal trades irritating and poisonous dusts are raised; also in pottery works and masonry, and in the handling of leather, skins, feathers, wool, cotton, wood, paper, cement, grain and flour. The amount of dust and the size of the particles may vary widely in different industries.

*When workers in these trades show signs of disease due to their occupation the reporting of such cases by the plant physician to the state would be a great advantage to both the employer*

*and the workers.* It would enable the state to make an investigation with the object of devising methods whereby further disease could be prevented. Section Two of the Occupational Disease Law specifies certain diseases due to the industrial hazards, and the law provides elsewhere that these are compensable and must be reported. The Act also requires the protection of workers in dusty trades by the use of respirators, but it neither specifies the dust diseases as being compensable, nor does it require that they be reported. We are advised by the Attorney General that silica is not provided for in Section Two. (Opinion based on case of Kelley vs St. Louis Smelting Co., Chap. 307 Ill. Sup. Court reports, P. 367).

The reporting of pneumoconiosis (chiefly silicosis) is, therefore, not compulsory under the Occupational Disease Law.

Section Two of the Occupational Disease Act mentions also any processes in which poisonous chemicals, minerals or other substances which are used in harmful quantities, or under harmful conditions. This appears to be clearly expressed, but legal decisions have referred it back to brass, lead, zinc or arsenic and have ruled that this was the intent and purpose of the law-makers. As I have previously stated, Section Two mentions finally the noxious or poisonous dusts, but requires only that industrial plants provide effective respirators for employees who are necessarily exposed to these hazards. Sections Three and Four of the Occupational Disease Act which deal respectively with the monthly examination of employees by a competent physician, and his reporting of certain occupational disease cases, are of great assistance to the state, *but we could accomplish much more if the requirements made by law were broadened sufficiently to include all important industrial hazards, and the diseases for which they are responsible.* The Division of Factory Inspection is charged (Section Eleven) with the enforcement of the Occupational Disease Act, and violations are subject to a prescribed penalty (Section Fourteen). In 1923 an amendment to the Occupational Disease Act was passed, *which implies that disease arising out of and in the course of employment shall be compensable the same as an injury due to accident,* the consideration and handling of the entire matter to come before the Industrial Commission. This made a distinction between common-law suits

originating under Section One, and Industrial Board hearings originating under Section Two. This distinction involves chiefly the financial aspects of cases, the common law suits being for sums ranging from ten to fifty thousand dollars, and the Industrial Board awards being based entirely upon proven disability, and the skill and earning capacity of the worker.

We believe that the importance of dusts as industrial hazards, and the necessity that they be specified in the law as such, *have been well shown by the results of certain common law suits in which workers or their estates have recovered damages for diseases caused by these hazards*, and for the prevention of which "reasonable and approved devices, means or methods" had not been provided by employers as required by Section One of the Occupational Disease Law.

As an example we may mention the case of *The First National Bank of Ottawa. Administrator, vs. The Wedron Silica Company.* (Vol. 35, Ill. Sup. Court Reports, P. 560) in which case damages of ten thousand dollars were awarded by the circuit court of LaSalle county. The worker had developed silicosis and pulmonary tuberculosis with a fatal termination. The decision of the lower court was later affirmed by the Illinois Supreme Court.

The case of *Jannusch vs. Webber Brothers Metal Works* (Vol. 241 Ill. Ap. Court Rep., P. 1) in which damages of five thousand dollars were awarded is also of interest. In this case the worker's employment had subjected him to the breathing of metallic dusts. He had developed pulmonary tuberculosis which was held to be the result of his occupation, and within the definition of those diseases to which Section One of the Act applies.

We do not feel that these suits should be brought under common law when the Occupational Disease Law so plainly specifies "poisonous chemicals, minerals, or other substances used in harmful quantities or under harmful conditions," and further specifies "noxious or poisonous dusts," both specifications coming under Section Two. We believe that a united effort should be made to clarify the meaning of statements made in that part of the Act. If this proves to be impractical, we would recommend that the entire section be re-written with the object in view of placing pneumoconiosis on the list of reportable occupational diseases and under compensation.

Owing to the risk of pulmonary disease in workers of the dusty trades to which I have previously made reference, it is necessary that effective methods and devices be employed to provide protection against these hazards.

Some years ago a survey of silica grinding plants was conducted by the state and dealt with the size of plants, number of employees, method of manufacture and other details. Both wet and dry methods of manufacture were in use, this being determined by the purpose for which the product was to be used. The point of interest here is that while the wet process is much safer than the dry, industry demands both wet and dry ground silica as necessary to their work. *Technical factors of this nature indicate the advisability of the state including the manufacturer in conferences involving the adoption of new or improved methods*, the practical knowledge of the manufacture being considered essential to a proper solution of such matters.

There seems to be some misunderstanding with regard to the purpose of reporting cases of occupational disease. While the law requires that the industrial physician must immediately report certain cases, we would much prefer that the industrialist feel and know, that by so doing he is not only helping himself but industry in general. Our statistical departments attempt to compute accurate morbidity and mortality incidence. *When the fundamental facts are not reported to us we have no foundation upon which to rest a movement for new and beneficial legislative measures*; and furthermore the attempt to evaluate our preventive efforts is thwarted. The State Departments which are concerned with these matters are greatly handicapped through the failure of industrial physicians to report the full number of cases of occupational disease. We are aware that the plant physician is not entirely to blame for this difficulty. *Some manufacturers are peculiarly averse to supplying this information, utterly failing to realize that the state's sole aim is in the direction of constructive effort in behalf of the manufacturer and his employees.* This lack of cooperation absolutely prevents the accumulation of accurate and valuable statistics which are necessary in our efforts to allay industrial friction and improve industrial health.

In accordance with the plan of the State Department of Health our medical inspector calls on manufacturers and suggests improvements



that are indicated, explaining why they are necessary and what results may be expected. A great many employers are cooperative, and we have found this to be a more satisfactory method of procedure than that of resorting to the more stringent legal measures which, although available if necessary to force the issue, are likely to cause discontent and opposition. Educative talks are made to the worker in order to assist the manufacturer in making needed changes, for the worker is often curiously apprehensive with regard to medical intervention, and fears that any radical changes may eventually result in the loss of his employment. Patience and tact are required, and repeated visits are often necessary before full compliance can be obtained. When good results are once obtained in such instances they are usually lasting.

In conclusion I wish to repeat that the aim of the State Health Department is purely in the direction of cooperation and assistance, together with the education of employees along lines pertaining to their own safety. Our efforts are fruitless without the support of industrial physicians and manufacturers. The actual control of pneumoconiosis will be accomplished only by strong cooperative effort, first, along the line of improved laws; secondly, by exchange of ideas for the framing of such laws; and finally, by united interest in the general employment of recognized preventive measures.

In relation to all phases of this problem the attitude of the State Department of Health is earnestly cooperative and receptive.

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#### LABORATORY METHODS FOR THE DETERMINATION OF ATMOSPHERIC POLLUTION CAUSING PNEUMOCONIOSIS

C. O. SAPPINGTON, M. D., Dr. P. H.

CHICAGO

The word "pneumoconiosis" has recently been one of the most used and abused words in medical parlance. When Zenker, a German pathologist, invented the term many years ago, little did he realize the difficulties that would arise in its application and interpretation.

The literal meaning of pneumoconiosis is

dusted lung; and without further modification or specification of the general or blanket expression, one does not know the kind or amount of dust which has produced it, whether or not there are symptoms accompanying the condition, and whether or not disability has been produced.

There are specific types of pneumoconiosis, such as silicosis and asbestosis (the two characteristic and clinically recognized diseases produced by dust inhalation) in which the findings are well known through international studies and which produce symptoms and disability. Likewise, the etiology of these definitely established lung diseases is well recognized.

Because of these reasons, therefore, the material in this paper will be restricted entirely to a discussion of the laboratory methods for the determination of atmospheric pollution causing silicosis, which is the most frequent specific type of pneumoconiosis encountered in industry.

To those who have had experience with the medical and legal aspects of silicosis, there has been considerable difficulty in establishing etiological relationships with reference to the kind and type of dust exposure; this same situation has obtained in reference to other occupational diseases, chiefly because the physician has had no incentive to adequately study environmental conditions in the various industrial plants, nor has he had the specialized training which is necessary to make such studies, or to appreciate the findings from this type of work. Great difficulties, therefore, have arisen regarding causal relationships and correlating such relationships with the clinical data.

The necessity of the development of objective criteria relating to industrial exposure must be quite obvious to those who have had clinical and legal experience with this problem. This is of especial importance in the differential diagnosis of various chest affections, of which there are many, which so closely simulate silicosis or are imitated by silicosis, in symptomatology and physical findings.

However, before the adequate application of laboratory methods can be accomplished, it is necessary to know the facts concerning the working conditions, which can be secured through what is known as a physical and hygienic survey of the plant, together with an occupational analysis of the men affected. As Bloomfield<sup>1</sup> well says: "The sanitary survey of the workroom

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<sup>1</sup>Read before Section on Medicine at meeting of Illinois State Medical Society at Springfield, May 15, 1934.

environment may be likened to the inventory of materials and stock which a business establishment usually undergoes annually. The sanitary survey may well be regarded as a listing of the facilities afforded the workers while in the industrial environment. When one realizes that one-third of the worker's day is spent in this environment, he clearly sees the necessity for a study of all those factors which bear on the health of the industrial workers."

In practice, the physical and hygienic survey consists in carefully filling out an inspection form and recording any additional notes on items which may not be provided in the form. On this form are spaces for data regarding the location of the various types of machines and apparatus used in the manufacturing processes and also spaces provided for a description of the materials used. After securing this information, an analysis of the data is in order and through this analysis one is able to form a picture of the physical and hygienic conditions in each of the workrooms studied and in the plant as a whole.

The occupational analysis permits one to learn of the activities involved and the particular hazards associated with each occupation; such an analysis also discloses the number of persons in each occupation, giving an idea of the importance of each hazard from the point of view of numbers involved. The importance of an occupational analysis to determine the extent of an occupational hazard is at once obvious, but there is still greater value in the subsequent steps necessary for the elimination of the conditions known to be injurious to health. It is impossible to map out a constructive and effective program of prevention or to know what hazards have been having an ill effect upon the health of persons exposed, without definite knowledge of the occupations, and the many processes and activities which may be associated with unhealthful conditions.

Specifically the physical and hygienic survey of the plant together with the occupational analysis provides information on which one can base an estimate of where samples of the air may be taken and how many should be taken in the various locations to secure adequate estimation of the exposure of the employees.

There are four exposure factors, each of which is important, and which should be continuously and consistently related to each other in the

evaluation of any dust exposure and also rated in etiological relationships. These four factors are: (a) concentration of dust—this has reference to the amount of dust in the breathing atmosphere and is generally expressed in terms of millions of particles per cubic foot of air; (b) particulate size distribution—this factor is expressed in terms of microns (one micron being one twenty-five thousandth of an inch) this order of size being microscopic in character—we are particularly interested in particles under ten microns in greatest diameter for the reason that it is this size of particulate matter which can enter the alveoli of the lungs; (c) mineralogical composition—this has particular reference to the quartz content of the dust and is of considerable importance because the quartz is the dangerous element in the production of silicosis—this factor is usually expressed as the percentage of quartz contained in the deposited dust; (d) the final factor is the period of occupational exposure and must be taken into consideration with the above mentioned points in assessing the hazard involved or the attempt to discover if silicosis could have been produced under certain environmental conditions. The exposure period naturally varies considerably in each case, but can be of value only when the other elements of exposure are known.

The technique of dust analysis which will be considered in this paper is that which has been worked out during the past twelve years by the United States Public Health Service and adopted as the standard by that organization. Only a brief description of this method will be given, but a detailed account may be secured by referring to the paper of Greenberg and Bloomfield on "The Impinger Dust Sampling Apparatus as Used by the United States Public Health Service."<sup>2</sup>

It should be understood that the sampling and counting procedures are entirely separate and are not done at the same time.

A brief description of the sampling apparatus used by the author is as follows: An electrically-driven apparatus consisting of a small motor properly geared and attached to a pump and blower produces a suction stream which is drawn through an improved and approved type of glass impinger which can be fitted into a calibrated flask. By the use of a rheostat the speed of the motor can be varied so that on the attached



gauge (which has been previously calibrated) the air may be sampled at the rate of one cubic foot per minute, a stop watch being used to register the time. (The reason that the sample is collected at this rate is because the average breathing rate of a man at an average type of labor is one cubic foot per minute).

Another type of collecting apparatus which is in universal use is known as a compressed air-driven suction device which is likewise connected with the impinger unit. This is essentially a Hancock ejector which when connected with the compressed air line in any given plant changes it into a suction stream and registers on a gauge which has previously been calibrated to deliver one cubic foot per minute when the readings lie within certain limits.

After the samples have been collected they are brought into the laboratory and properly diluted either with distilled water or 95 per cent. chemically pure alcohol, whichever was originally used as the collecting medium. There is no formula for the proper dilution, the object, however, being to secure a proper dispersion of the particulate matter so that it will not agglomerate or be superimposed when put under the microscope for enumeration. One learns by experience at about what opacity as gauged by the naked eye, it is wise to make dilutions.

After dilution, the next step is what is known as plating. Approximately one c.c. of the suspended material is pipetted into a previously calibrated Sedgwick Rafter cell of the type which has been used in studying water and sewage samples. The plated sample is then allowed to settle for twenty or thirty minutes, having been covered by a cover slip, and is then ready for counting.

Enumeration is done under a magnification of 100 diameters with an ocular of 7.5 and a tube length which will allow a calibration with a stage micrometer so that the Whipple disc used in the ocular measures exactly one millimeter on each side of the large square. By the use of the mechanical stage on the microscope the Sedgwick Rafter cell is moved about and five enumerations are made in one-fourth of the large ocular square, these five enumerations being made on each of two Sedgwick Rafter platings. The ten enumerations are then averaged and from them is subtracted a similar enumeration which has been done on a control of distilled water or alcohol,

so that the amount of dust already in the collecting medium may be subtracted from the average count. Knowing the size of the counting field, the volume of the Sedgwick Rafter cell, the dilution of the sample, the average net count, and the number of cubic feet sampled, one can determine the concentration of the dust in terms of millions of particles per cubic foot of air sampled.

The size of the particulate matter may be noted as one does the enumeration, by comparison with the fine markings on the ocular disc. Another technique for estimating the size frequency of industrial dusts has been worked out by Bloomfield<sup>3</sup> and this is briefly as follows: by the use of an Owens Jet Dust Counter, the atmospheric dust is projected directly on a naked cover slip. The cover slips are mounted on an ordinary microscopic slide and the dust particles are measured by the use of a filar ocular micrometer at a magnification of 1000 diameters, using the oil immersion objective. The horizontal diameter of at least 200 dust particles in several representative fields are measured for each sample. With this magnification it is found possible to measure particles as small as 0.5 micron in size, while particles smaller than this size are easily distinguished at this magnification and their presence recorded.

In assessing the mineralogical composition of any industrial dust, we are chiefly interested as mentioned before, in the percentage of quartz. This procedure is carried out by a petrological examination, and is briefly as follows: a gross sample of deposited dust (not that taken through the impinger collector) is mounted on a glass slide in an oil having a refractive index of 1.54—1.55. The slide is then studied under a petrographic microscope (which makes use of polarized light) with a magnification of 270—360 times, which will permit the determination of the refractive index of the particles examined. All dust particles having a lower index than the oil are considered to be quartz, provided that they do not possess other properties foreign to quartz. All of the grains in the field are counted as well as the quartz grains and the average is thereby derived. One technique is to make a determination in each instance based on 25,000 separate particles. This method has been adapted from the work of Knopf<sup>4</sup> who has described in the

Public Health Reports a method for the quantitative determination of quartz in dusts.

The period of occupational exposure as has been mentioned, is extremely variable in different instances but should be obtained from the employment and medical records and considered in conjunction with the results gained from the evaluation of the other three exposure factors described.

Knowing then, the physical and hygienic conditions, the occupational activities, the concentration of the dust in the working environment, its particulate size distribution, the mineralogical content with reference to the quartz percentage, and the number of years of exposure, one can by comparing with other studies which have been made, assess the severity of the hazard involved and state how it compares with conditions where silicosis has developed.

The criteria which have been suggested by the U. S. Public Health Service relating to environmental exposure in the production of silicosis, were worked out in a series of studies relating to the health of workers in dusty trades and refer especially to exposure to siliceous dust. A description of the material is given in Public Health Bulletin No. 187.<sup>5</sup> It was found for instance, when using the methods previously described that exposure to dust with a quartz content of approximately 35 per cent. and considering particles under ten microns in greatest diameter, when the concentration was less than ten million particles of dust per cubic foot of air the exposure was considered to be relatively safe; however, when exposures to concentrations of more than twenty million particles per cubic foot of air were encountered, silicosis occurred in varying periods of time.

Other studies have been done in relation to other types of dusts in establishing concentration, particle size and the quartz content, so that comparative data may be considered; however, the chief concern today should be regarding the production of the common type of specific pneumoconiosis which produces a definite disease and disability, namely silicosis.

One should never minimize the importance of clinical findings in these studies and it is necessary that the environmental exposure data be thoroughly coordinated and correlated with the clinical information. One cannot, however, obtain an adequate view of the etiological rela-

tionships without a quantitative and qualitative estimation of the exposure factors as mentioned.

Something should be said here concerning the technique of the methods which have previously been described. A great many well-meaning persons have literally "taken up" these procedures and without any previous experience of any kind have attempted to make dust determinations. The reputability of these tests, therefore, has suffered severely because of misuse and abuse and the interpretations of the findings have also been poorly done in many instances. Scientific foundation and application of dust determination procedures will never be sound until the persons who undertake the work are given special training and have had sufficient experience to the end that they have developed real expertness.

The real value of the so-called "dust count" has been a source of confusion. A dust count of and by itself is of no more significance in the estimation of a health hazard in a dusty process than is a blood count or urinalysis alone in making a medical diagnosis. True, these methods yield some information. In connection with the four factors which have to be taken into consideration when estimating a relative silicosis hazard in any industrial environment, the so-called "dust count" refers merely to the concentration of the dust and does not give any information relative to the mineralogical composition, nor yield any knowledge concerning the exposure of various individuals. Even when all of these factors are known, they must be properly interpreted and applied to each set of conditions found in any given plant; they must be coupled with a hygienic plant survey and an occupational analysis of all exposed employees, and also an assessment of the efficiency of the dust removal and protective devices used. When this combination is possible, the use of these methods is of considerable value. In short, a dust study and survey of a plant will yield information regarding the severity of the health hazard and the efficiency of control devices. This information is used in two ways: to prove that the health hazard does not exist, or when it does, to indicate measures of control. It is plain, therefore, that there are good reasons for abolishing the term "dust count" and substituting in its place the expression "dust analyses," or "dust study," or "dust survey."

It should furthermore be well understood that



the technique of dust sampling and dust analysis has been recorded in the literature, and that there is also an approved technique sponsored by the U. S. Public Health Service. It is well that this is so, for we need a national standard, so that comparisons may be made by various investigators, and so that there may be also a basis for comparisons between different plants. But the technique cannot be properly learned by merely reading it and "trying it out;" as previously mentioned adequate training and experience are both necessary to secure real results.

The methods herein described (as well as other analytical methods applying to the estimation of other injurious substances in the industrial environment) may at the present time be applied in three practical ways: 1. The employer may desire to know just what the relative severity of the dust exposure may be in his plant, either for purposes of checking up on the dust control system which he has, for the prevention of future cases of silicosis, or for the defense of claims; 2. The attorney representing an industrial organization may likewise wish to get information concerning the severity of exposure, which information may also be of the same use to the insurance carrier; 3. The casualty and indemnity insurance company before undertaking the underwriting of a risk involving occupational disease may want to know the nature of the exposure, which would permit of more intelligent underwriting and a better way of evaluating the risk. The last application mentioned has been one which has been very much neglected, principally because these methods have not been at the general disposal of insurance carriers and consequently their information for the evaluation of possible future risks has been largely gained through mere visual inspection without the making of any analyses.

Finally, in simple terms, one must know where he has been before he is able to know where he should go—it is highly desirable that scientific procedures should supplant inference and surmise, when considering projects which involve large amounts of money and time, to say nothing of health and efficiency.

#### SUMMARY

A brief description of the laboratory methods used in the determination of atmospheric pollution causing silicosis, the most frequent specific type of pneumoconiosis, has been given.

To secure the real value in assessing the relative health hazard in any given industrial environment these laboratory methods must be used in connection with the information gained through a physical and hygienic survey of the working conditions, together with occupational analyses of employees thus exposed. When adequate information concerning environmental conditions has been gained by use of the above mentioned procedures, comparisons may then be made with the criteria which have been suggested by official groups, thereby providing a basis for an estimation of the hazards involved in any given problem.

There are ample reasons for believing that laboratory and survey methods can be only properly used and interpreted by those who have had sufficient special training and experience to permit of real expertness.

Similar study and survey procedures will be used more widely regarding various occupational disease exposures in evaluating the essential hazard, the prevention of disease, and the rating of the efficiency of control devices.

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#### THE HEALTH OF WORKERS IN DUSTY TRADES

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The subject of the health of workers in dusty trades has of late been receiving considerable attention from those interested in the various phases of this problem. When one realizes that the workmen employed in the dusty trades com-

prise one of the largest groups exposed to any one industrial hazard, it is quite apparent that the importance of this problem has not been overestimated. It is by now fairly well established that exposure to certain kinds of dust has increased the mortality rate from respiratory diseases.

Realizing the importance of this problem, the United States Public Health Service in cooperation with the Bureau of Mines began its first study of the health of workers in dusty trades in 1914, in the mines at Joplin, Missouri.<sup>1</sup> Later, in 1923, the Public Health Service inaugurated a series of dust studies under the general direction of Assistant Surgeon General L. R. Thompson. These studies were all conducted in the same manner in order to permit as detailed a comparison as possible between the different investigations. Briefly, these methods of study may be divided into six parts, as follows: 1. examination to determine the general physical condition of the workers under observation; 2. special physical examination to determine the prevalence of specific diseases of the respiratory system and the lung pathology resulting from exposure to the particular dust hazard; 3. record of the nature and severity of the disabling illnesses; 4. analysis and detailed study of the occupational environment; 5. Occupational mortality statistics relating to the specific dust; and lastly 6. autopsies. In brief, the chief value of each of these studies lies in the fact that it represents careful and detailed observation on a fairly large group of persons whose working environment was accurately determined, especially with reference to the nature and quantity of the dust exposure.

#### EFFECTS OF INDUSTRIAL DUSTS ON HEALTH

*Public Health Service Studies.* The first six investigations carried out by the Service dealt with the health of workers exposed to dusts in a cement plant, granite cutting industry, anthracite and bituminous coal mining, silverware polishing plant, cotton cloth manufacturing and in municipal street sweeping.<sup>2, 3, 4</sup> Later, briefer studies were conducted in certain slate, granite, marble and talc quarries, while more recently a rather extensive study of the health of anthracite coal miners was completed.

The first six dust studies conducted by the Public Health Service showed that the workers in the granite cutting plants who were exposed to the highest dust concentrations were found to

suffer from an excess of pulmonary tuberculosis after 15 years or more of exposure and developed silicosis from 2 to 10 years. In the group exposed to a lesser amount of dust silicosis developed only after prolonged exposure with no excess of tuberculosis. It was found that a close relationship existed between the degree of dust exposure and the extent and severity of the pulmonary damage. Anthracite coal miners were found to have dyspnea, other signs of pneumoconiosis and respiratory sickness; in addition, an excessive mortality from influenza-pneumonia and possibly tuberculosis. Some of the bituminous coal miners had a generalized fibrosis of the lungs and an excess mortality from influenza and pneumonia. Some cement workers showed signs of slight pneumoconiosis with an excess of diseases of the upper respiratory tract. Workers in the cotton cloth and silverware manufacturing plants and municipal street sweepers were negative for respiratory conditions and other illnesses when compared with the general industrial population.

*Rock Drilling.* For five years, the United States Bureau of Mines studied lead and zinc miners in the Tri-State District, Picher, Oklahoma. The gangue of the ore is chiefly chert, a form of free silica. The results of the physical examination of the workers for the first year of the study have recently been issued by Sayers, Meriwether and Lanza.<sup>5</sup> Of the 7,722 men examined, a group of 1,647 (21.3 per cent.) was definitely diagnosed as having silicosis, not including those diagnosed as having tuberculosis. All the men diagnosed as having first-stage silicosis had worked an average of 13 years, but those men starting in the mines after 40 years of age worked an average of only 8 years.

The work of rock drilling in subway and tunnel construction in New York City is in some respects similar to that of some of the activities in the hard rock mines, at least in so far as the manner in which dust is evolved, the type of dust and the resultant hazard. Recently the result of a study of rock drillers, blasters and excavators was reported by the New York Tuberculosis and Health Association.<sup>6</sup> The diagnosis of the condition of silicosis was based mainly upon roentgenographic appearance. An examination of 208 rock drillers, blasters and excavators showed that 118, or 57 per cent. of the men, had silicosis in various stages of progression. The exposure of most of these men (75 per cent) had been for 20 years or more. The exact inci-



dence and progress of tuberculosis among these workers was not definitely established by this study.

*Sandblasting.* No study of the health of sandblasters has been reported in the United States. However, a study of the dust exposure of sandblasters was recently completed by the United States Public Health Service in cooperation with the National Safety Council.<sup>7</sup> This investigation indicated, that judged by the nature of the dust and degree of the exposure, a real hazard exists in this occupation. This study also brought out the fact that it is possible to conduct sandblasting with safety, provided properly designed and well maintained equipment is used.

*Diatomaceous Silica Workers.* Most of the data on the subject of silicosis have been gathered from studies made both in industry and experimentally on dusts containing free silica in the form of quartz. Such studies have been made in the granite industry, pottery trades, hard rock drilling, etc. There are free silica minerals in existence that are not crystalline but of an amorphous form. In California, about 350 miles south of San Francisco, in Santa Barbara County, there exists what is said to be the largest and purest diatomaceous silica deposit in the world.<sup>8</sup> This diatomaceous substance consisting of about 85 per cent. free silica of an amorphous nature is used in various industries. It is an excellent non-conductor of heat, and bricks made from this substance are now used in building furnaces. It is used as a filtering agent because of its lightness, porosity and clarifying qualities. It is also used in the abrasive industry and in making concrete.

Because of the fact that the mining and manufacture of this substance is a new enterprise it has as yet not been possible to perfect machinery free from the dissemination of dust in the atmosphere, and for this reason the workers are exposed to considerable quantities of this dust. Recently an examination was made of 108 workers selected on the following basis: those employed less than 1 year; 1 to 2 years; 2 to 5 years, and more than 5 years. All of the workers were Mexican laborers and the examinations consisted of x-ray determinations, social and medical histories, and clinical examinations of the chests. Dust determinations were also made but these were not reported. Eighty-four per cent. of the workers were in excellent physical condition. Sev-

enty-three per cent. of workers had "clubbed" fingers in various degrees of development. An analysis of the data obtained from this survey show that silicosis among these workers is a slow process advancing with the years of employment. It was found that 60 men showed signs of early pneumoconiosis; 15 were in the moderately advanced stage and 6 in the advanced stage. This latter finding was among workers with a history of exposure of more than 5 years.

*Dust Hazard in Abrasive Industry.* Artificial abrasives are widely used in industry and for this reason the effect of the inhalation of dusts produced in the manufacture or preparation of these products is of great importance. In 1925, 1929, and again in 1931, Dr. Clark of the Norton Company at Worcester, Mass., reported the results of his study of the workers exposed to aluminium oxide and silicon carbide dust produced in the manufacture of grinding wheels.<sup>9, 10, 11</sup> This investigation showed that during a period of 13 years there were proportionately twice as many cases of pulmonary tuberculosis among those working in the abrasive dust departments as among those in the departments where no abrasive dust occurred. Unfortunately no dust determinations were made in the present study, so that it is impossible to evaluate the dust hazard on the basis of degree of exposure. This study does point out, however, that it is inadvisable for persons who have had pulmonary tuberculosis to work in atmospheres where large amounts of artificial abrasive dusts, of the type present in the plant under consideration, are present. With reference to the kind and severity of lung fibrosis produced by the inhalation of the abrasive dusts present in this plant, Clark's earlier studies showed that of 79 men exposed to the dust for 10 years, roentgenographic examination revealed 12 men with no evidence of silicosis; 43 showed first stage changes and only 3 exhibited second stage or true silicosis. Of these 3, only one had been exposed to the abrasive dust alone, this exposure lasting about 26 years.

In 1931,<sup>12</sup> Kessler of New Jersey, reported the occurrence of over 100 cases of alleged silicosis in the abrasive powder industry, in which the dust consisted of 99 per cent free silica. Of 40 x-rays of cases reviewed by Kessler only 4 could be called ante-primary. The most important finding of these cases has been the allegedly short duration of exposure—varying from 4 months

to 1½ years. The reports are that many of the men have first or second stage silicosis.

*Exposure to Silicate Dust.* For many years it has been the belief that the inhalation of dusts composed of silicates (combined silica), in comparison with silica (free silica in the form of quartz), was innocuous. Asbestosis, a fibrosis of the lungs caused by the inhalation of asbestos dust, has been described both in its clinical and roentgenographic manifestations by investigators in other countries, but to date no studies have been reported in the United States. Cement dust, which contains about 22 per cent. combined silica, has been studied, and the effects of the inhalation of this dust on workers was discussed in an earlier portion of this review. Dreessen, of the United States Public Health Service, reported the results of a study conducted among tremolite talc and slate workers.<sup>13</sup> The slate dust to which these workers were exposed consisted mainly of silicates, there being less than 3 per cent. of quartz in the dust. The talc was a hydrous calcium-magnesium silicate, being 45 per cent. talc and 45 per cent. tremolite, with no quartz present. Dust determinations were made, showing the intensity of the exposure, and the results of the study seemed to indicate a relationship between the amount of dust inhaled and the effect of this dust on the lungs of workers. Clinical and roentgenographic studies of the workers showed that the silicate dusts of tremolite talc and slate induce a fine, diffuse, bilateral fibrosis of the lungs which is definitely demonstrable in the x-ray. However, in spite of the heavy dust exposure (1440 for talc and 710 million particles per cubic foot for slate workers) it could not be demonstrated that the resultant pneumoconiosis had led to disability even after 16 years of exposure.

*Statistical Studies.* Recently, Lanza and Vane<sup>14</sup> estimated that there were some 500,000 workers engaged in the manufacturing industries in this country in which an exposure to silica dust was entailed. Their analysis of mortality experience of twelve life insurance companies for the period of 1915-1926 showed that the actual mortality from respiratory tuberculosis among the silica exposed persons was about three times that of a non-silica dust group. If one considers their data for certain occupations in metal mines and granite and sandstone quarries, occupations known to be associated with high concentrations

of dusts, then the comparison is still more striking, since the actual deaths among those workers was found to be ten times that of the expected deaths. More detailed statistics on mortality from respiratory tuberculosis are afforded by the last report of the Registrar-General of England and Wales (1921-1923), summarized by Britten.<sup>15</sup> These statistics on occupational mortality show the high rate of 1,886 per 100,000 for tin and copper miners while the rate for "all occupied and retired males" was only 150. Some of the other occupations exposed to silica dust presented a similar, although not as great, reflection of the silicosis hazard in industry.

#### METHOD INVOLVED IN ATMOSPHERIC INDUSTRIAL DUST DETERMINATIONS

From the evidence just presented concerning the injurious effects produced by the inhalation of certain dusts, it is apparent that a knowledge of the properties of a given dust which determine its capacity to produce pulmonary pathology is essential. Numerous investigations of the industrial dust problem indicate that these properties are the chemical and mineralogical composition of the dust, its concentration in the industrial atmosphere, and its particle size.

In order to obtain a sufficiently large sample for mineralogical analysis, it has been found that dust settled out at the worker's breathing level gives a fair representation of the dust present in the air. Such samples are best analyzed by a competent geologist, who is equipped to make use of a combined chemical and petrographic examination of the dust.<sup>16</sup> Since no two dusts offer the same problem it is difficult to lay down general rules for such an analysis. Each sample must undergo a careful examination under the petrographic microscope, and a complete chemical analysis. Only by such analysis have we found it possible to determine accurately the percentage of quartz present in quartz-containing dusts.

It is necessary to know something of the size of the particles in the dust under consideration in order to ascertain whether or not the dust is of a size capable of gaining access to the lungs. Samples of industrial dust may be obtained with the Owens Jet Dust Counter,<sup>17</sup> in which the dust is projected on a microscope cover-slip. The dust on the cover slip may then be measured with the aid of a calibrated filar ocular micrometer at a



magnification of 1,000 diameters. At this magnification it is possible to distinguish particles as small as 0.2 microns in size.

Recent studies<sup>18</sup> of the size of industrial dusts made by one of the authors showed that nearly all industrial dusts suspended in the atmosphere are less than 5 microns in size and that the majority of the dust particles (71 per cent.) was found to be between one and three microns in average diameter. It is obvious that practically all atmospheric industrial dusts are of a potentially dangerous size.

With reference to the quantity of dust present in the air of a workroom it is apparent that when the dust concentration is high the exposed person will inhale a greater quantity in a given period of time than he will when the dust concentration of the atmosphere is relatively low. Since the development of the fibrosis is partially dependent upon the quantity of dust inhaled, this latter item plays an important role in predicting the relative danger of different environments.

The Impinger apparatus is extensively used, both in this country and abroad, for the sampling of aerial dusts.<sup>19</sup> The atmospheric dust is entrained in a suitable liquid medium, such as distilled water and the dust particles in the sample counted with a microscope.

Prior to obtaining dust samples the investigator should become thoroughly familiar with the industry being studied. This is best accomplished by conducting a sanitary survey and occupational study of each workroom.<sup>20</sup> The sanitary survey of workrooms in any plant yields definite information concerning the presence and extent of potential health hazards and often serves as a guide in establishing which hazards require further study in the form of actual quantitative analyses. In other words, the sanitary survey may well be regarded as a listing of the facilities afforded the workers while in the industrial environment. The occupational study permits one to learn of the activities involved and the particular hazards associated with each occupation. Such an analysis also shows the number of persons in each occupation, which gives an idea of the importance of each hazard from the viewpoint of the numbers involved. In the case of a dusty industry, the occupational study shows the dusty occupations, the number of persons in each occupation, the various activities and the time devoted to each activity of any one particu-

lar occupation. Experience has shown that only by a systematic and careful study can dust determinations be of any real value in the control of the industrial dust hazard.

#### THE CONTROL OF INDUSTRIAL DUST

In an earlier portion of this discussion evidence was presented which indicated that a close relation existed between morbidity and mortality rates from various respiratory diseases and the exposure to certain dusts in industry. In the study of the dust hazard in the granite cutting industry,<sup>3</sup> it was definitely proved that there is a direct relation between the magnitude of the dust exposure and sickness and death resulting from tuberculosis. It is quite evident, as a result of these studies, that the remedy of the dust evil lies in the effective removal or suppression of the dust to a concentration considered safe. However, no set rules may be established for the mechanical protection to be instituted in an attempt to control industrial dust. Specific conditions encountered in a plant will determine the type of protection to be employed.

The protection of workers against certain dusts known to be toxic may at times be accomplished by the substitution of a non-toxic material for the toxic one. One example of such a procedure is the possible use of a metallic or other type of artificial abrasive for sand in the sandblasting process in those operations in which it is not essential to use sand, a substance high in quartz content.<sup>7</sup> The mechanical enclosure of the dust-creating process also serves to protect the worker. An excellent illustration of this type of protection is afforded by the modern sandblast barrel used in the cleaning of small objects. Sometimes it is possible to protect workers by the substitution of wet for dry processes. In one instance, in the granite cutting study previously mentioned, an operator using a diamond point tool worked the stone wet; the resulting dust amounted to 22 million particles per cubic foot. The same operator was then requested to work the stone dry; as a result, the amount of dust reached 45 million particles per cubic foot. In the weaving of asbestos cloth it has been possible to reduce the amount of dust in the air by wet weaving to one-fourth of the amount present when the process is conducted by dry methods. Another example of this procedure in allaying dust is the use of water in Leyner and jack-hammer drilling in

hard rock although dust traps have been suggested for use in drilling.<sup>21, 22, 23</sup>

One such trap consists of a metal hood or cup designed to enclose the drill steel at the rock surface. No attempt is made to secure a mechanical seal with the rock or between the trap and the drill steel. The dust is removed by an air stream and is carried into an exhaust system connected to the trap. Escape of dust particles through openings between the uneven rock surfaces and the trap is prevented by the air seal produced by the inflowing air. Tests made on this trap under actual working conditions show that the dust concentration at the worker's breathing zone may be kept down to less than 10 million particles per cubic foot with a 60 cubic foot per minute rate of air flow through the hood. When using this trap or hood underground, for horizontal and down drilling a rate of 200 cubic feet per minute through the hood was found necessary to reduce the dust concentration at the breathing zone to less than 10 million particles per cubic foot.

In certain cases, such as in the sandblasting of large castings in sandblast rooms, the practical safeguard to the worker is to provide him with a mask or helmet of the positive type. In the sandblast investigation previously mentioned it was found that when from 5 to 6 cubic feet of practically dust-free air per minute are supplied to the helmet, the worker receives ideal protection. However, one must always bear in mind that the ultimate criterion of protection should be the dust determination of the air within the helmet during blasting and not the quantity of the air supply itself.

In most dusty processes, however, the most effective means of dust elimination are by the use of properly designed exhaust ventilation systems. Since in many instances it is difficult, costly, and at times unnecessary procedure to remove all the dust in the vicinity of a worker, we need first to determine the minimum amount of a certain dust which the worker can apparently tolerate with impunity. Such information can be made available by the type of studies carried out by the Public Health Service (mention of which was made earlier in this paper). For example, in the granite study already referred to it was shown that the threshold dose was about 10 million particles per cubic foot. Studies of dust removal devices used in granite cutting

plants at the time this work was conducted showed that a linear velocity of 1500 feet per minute, as measured by an anemometer at the face of the dust removal hood, would keep the dust at the breathing level of the worker to an amount less than 10 million particles per cubic foot.<sup>24</sup>

Later, the workers at the Harvard School of Public Health reported a study of dust control systems for stone cutting.<sup>25</sup> As a result of this study it has been possible to specify the correct design of local exhaust hoods and the minimum air flow requirements for removal of dust generated by the use of pneumatic cutting tools in granite plants. One of the outstanding contributions of these studies was the work of Dalla-Valle,<sup>26</sup> who pointed out the importance of the velocity characteristics in the design of local exhaust hoods in general. This latter work is of fundamental importance in the design of efficient exhaust hoods for the control of dusts and points out the fact that it is the velocity characteristics of a hood and not the static suction, as considered heretofore, that should form the basis of hood design. What is greatly needed at present, now that some of the basic principles have been established, are studies, both experimental and in industry, to establish the minimum air requirements necessary to remove various dusts to a safe level. This type of work should go hand in hand with broad dust studies aiming at the determination of the threshold doses for various industrial dusts.

It has already been shown that in the use of positive pressure respiratory devices in sandblasting, it is important to have a well-designed device supplied with about 6 cubic feet of dust-free air per minute to give full protection to the worker. With reference to respirators of the filter type, there is still much to be accomplished in the design of an efficient and comfortable mask for continuous use. Of great need at present are standard methods for the testing of the efficiency of respiratory protective devices. Such methods have been recently suggested by Drinker,<sup>27</sup> who advocates testing of a device against the particular dust which the respirator is to encounter: these tests to be made both in the laboratory and under actual industrial conditions. It is further suggested that some impartial agency should conduct such tests and certify the devices for industrial use, the work being done on a cost basis.



At this time it is desired to stress the importance of good housekeeping in the effort to combat the dust hazard. Good housekeeping should not only imply the removal of accumulated dust about a workroom but should also embrace sufficient maintenance of dust removal devices and respiratory protective equipment. Systematic inspection of all dust suppression equipment should be an axiomatic principle in every dusty industry rather than the casual attention which it now receives in many instances.

#### SUMMARY

In this discussion there has been presented a brief review of some of the studies conducted during the past few years on the health of workers in certain dusty trades. These studies have been of material aid in the efforts to combat the dust hazard. However, much work still remains to be accomplished, there being many industrial dusts about which we need more information. Some of these dusts which are now coming into prominent industrial use are tripoli, a free silica composed of quartz and amorphous silica, vitreous or fused quartz, and the dusts arising in the foundry and ceramic industries. Pure talc and its impure variety soapstone, should also be investigated. Such investigations should be carried out both in the laboratory on animals and in industry, where one is in a position to study the effects of the inhalation of these dusts on workers who have been exposed for a long period of years. In industry, all phases of the problem should be studied, including careful occupational histories, clinical and roentgenographic examinations, nature and concentration of the occupational dust exposure and wherever possible autopsy material should be collected. It is only by such complete dust studies that one may ever hope to amass sufficient basic evidence which could then be used in those further steps, namely, the eradication of the industrial dust evil.

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## THE CLINICAL DIAGNOSIS OF SILICOSIS

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As most of you know, within the past few years silicosis has become an acute and important problem. It has existed since men first started chipping at stone and has grown constantly with the development of civilization and industry, with the mining, the quarrying, the grinding, the polishing, the glazing and all the other types of work in which silica dust is produced. Men have been disabled by silicosis and have died of it, and of the tuberculosis which it invites, for centuries, but it is only within the past one hundred years or less that the condition has been recognized and studied by the medical profession, and only within the past few years that in this country the problem has become truly acute. It has become so because certain lawyers have found it to their advantage to hunt up men who have been exposed to silica and urge them to start suit against their employers. Before this the employers were either ignorant or not particularly concerned. Now, with hundreds of suits pending against them, they are frantically interested. Much good will come of it, for the exposure of men to silica dust will be curtailed. In the meantime there exists a bad situation. Most of the men for whom the lawyers are filing the suits are tried before juries. The jurymen, ignorant of the whole situation, prejudiced in favor of the individual against the corporation, and influenced by medical testimony which is divergent, find usually for the plaintiff. The companies are being unjustly penalized and the legal and medical professions are being put in an unfavorable light. And because the lawyers take at least half of the money awarded, the men truly injured are not receiving justice.

The clinical findings of any disease should and must be considered in relation to its pathology. In this condition the primary change is a slowly progressing interstitial peribronchial fibrosis, which involves and eventually blocks the lymphatics and the reticulo-endothelial system. The fibrosis as it progresses limits the expansibility of the lung and may eventually reduce seriously the vital capacity. It may also distort and di-

late the bronchi and produce compensatory emphysema of the parenchyma, two conditions which favor the development of chronic bronchitis. In most cases its most serious results arise from the injury to the normal defense mechanism of the lung and the consequent predisposition to infection by the tubercle bacillus. The fibrosis and emphysema also certainly increase the resistance in the pulmonary circuit, in some cases to such an extent that the right heart dilates and fails.

There are no symptoms or physical findings which are characteristic of silicosis. The diagnosis depends upon three things: 1. A history of exposure. 2. A characteristic roentgenogram, and 3. The absence of other conditions which can simulate it.

While a man is working in dust the mechanical irritation of the large particles may produce a cough. This is not a manifestation of the disease. Silicosis may progress well into the second stage without producing appreciable symptoms. The only symptom of the uncomplicated disease is shortness of breath; and pulmonary damage must be extensive before this becomes manifest on moderate exertion. By the time dyspnea has become apparent chronic bronchitis will have supervened with occasional attacks of dry pleurisy. The symptoms of morning cough and pleuritic pains will have been added. Hemoptysis, fever, sweats, loss of weight and other evidences of systemic infection are not symptoms of uncomplicated silicosis. Their presence is practically always indicative of the existence of a complicating tuberculosis.

The only constant physical findings are a limited chest expansion and a reduced vital capacity. In its first and often in the second stage these are slight and there are no other detectable abnormalities. Compensatory emphysema may give hyperresonance and decreased breath sounds and chronic bronchitis scattered bronchial rales. In the third stage large areas of fibrosis may produce dullness and bronchial breathing. Constant post tussal rales in the apices suggest tuberculosis. Clubbed fingers may or may not be present. Cyanosis supervenes only in extreme cases and then usually as a result of failure of the right heart.

*The Complications.* Chronic bronchitis, emphysema, bronchiectasis, dry pleurisy and failure of the right heart have already been mentioned as



complications. Spontaneous pneumothorax and pleurisy with effusion occasionally occur, the former either from the rupture of an emphysematous bleb or extension of a tuberculous focus; the latter always as an early manifestation of tuberculosis. I shall speak later of the relationship between silicosis and tuberculosis.

From the symptoms and physical findings one cannot make a diagnosis. All of these may be absent in the presence of well advanced disease and when present are similar to those produced by many other bronchial, pulmonary and cardiac disorders. Emphysema, chronic passive congestion, bronchiectasis, pulmonary arteriosclerosis and certain types of chronic tuberculosis are a few of the conditions which can closely simulate it.

I have said that three things are essential to the diagnosis. The history of adequate exposure is the first of these. To obtain this it is necessary to investigate the individual's various occupations with great care and to trace his employment from the time he first started work. Following a relatively short exposure there may be a free interval of as much as twenty-five years before the appearance of the first symptoms or the onset of the complicating tuberculosis.

Silicon dioxide and magnesium silicate (asbestos) are the only dusts which have been shown definitely to produce disabling fibrosis and to predispose to tuberculosis. In the present discussion I have not time to list the various occupations in which these dusts are encountered. They are very numerous and occasionally very unexpected. Silicosis has been found in a professional tap dancer who scattered sand on the floor before each performance and in farmers and ranchers in sandy districts. It is important to know that wet grinding and drilling are a little more dangerous than dry.

The length of exposure necessary to produce the disease is not definitely known. I say this because practically all of the studies on this subject have been made on men still working at a dusty trade. That they do not develop it for two, three, ten or twenty years does not mean that this length of exposure is required. We know that the fibrosis progresses after the cessation of exposure; we know that there is often a long free interval between exposure and the appearance of symptoms. There is reason to suspect that a man who develops it after ten years steady ex-

posure would have developed it at the same time had he left the work after a year or two.

That aspect of the subject needs further investigation. In general one can say that the length of exposure necessary to produce silicosis depends upon the concentration of the dust and upon some undetermined individual idiosyncrasy. Dr. Sappington has already told you of the methods of counting the dust particles and of the standards of safety which have been set by the public health services of the various countries. Within the past few years cases have been reported of death from uncomplicated silicosis less than one year after the beginning of exposure among workers in the scouring powder industry. Sand blasting produces a high concentration of dust as does sandstone grinding and drilling. Men working at these occupations develop the disease rapidly and have a short expectancy. In most industries such as quarrying, mining and foundry work, the dust is less concentrated and the required period of exposure longer, averaging about ten years with a minimum of two and maximum of twenty-five to thirty. No two individuals working under the same conditions will develop it at the same time. Mouth breathing, intercurrent infections and variations in the function of the reticuloendothelial system have been cited as the explanations of this variation in susceptibility.

A characteristic x-ray is the second essential to the diagnosis of silicosis. The earliest changes of first stage silicosis have been described as an increase of the hilus shadows and of the linear peribronchial markings extending into the lung fields. I myself have never been able to recognize this stage. Every x-ray of the chest has hilus shadows and linear peribronchial markings and in normal individuals both of these vary markedly and proverbially, both actually and with the hardness of the film. First stage silicosis on the x-ray is an exaggeration of normal markings and in my experience it has been extremely difficult to say where the normal ends and the pathological begins.

Second stage silicosis is a very definite roentgenographic entity. It may be either infiltrative or nodular, either a definite increase in the linear markings or distinct peribronchial nodules. The middle lung fields are those earliest and chiefly involved, the right usually earlier and more extensively than the left. The apices and bases are ordinarily spared until late and are

practically always less densely infiltrated than the middle fields.

In third stage silicosis there develop larger areas of opacity and in extreme cases a whole lobe or lobes may be densely fibrotic. It has been stated that cavities develop, but I will have to see these and determine by post mortem examination that tuberculosis is not present before I will be convinced that simple silicosis can produce them.

*The Differential Diagnosis.* There are numerous other diseases which can closely simulate the x-ray findings of silicosis. The most common are tuberculosis and the chronic passive congestion secondary to heart disease. Rarer ones are miliary carcinosis, pulmonary arteriosclerosis and miliary infection with yeast and fungi. The history and the physical and laboratory examinations are chiefly valuable in identifying or ruling out these simulating conditions. I shall speak later of the differentiation from tuberculosis. When chronic passive congestion is the cause there are practically always physical, x-ray and electrocardiographic signs of heart disease. If heart disease is present, one must be sure that it is primary and not secondary to silicosis. Myocardial failure or hypertension shows on the electrocardiogram a left ventricular preponderance while in that secondary to pulmonary fibrosis the right ventricle is chiefly affected. Mitral stenosis, which also shows a right ventricular preponderance, may be recognized by the thrill and murmurs. In pulmonary arteriosclerosis the red blood cells are usually increased in number and the cyanosis is out of proportion to the x-ray findings. The mycotic infections are febrile diseases with characteristic organisms in the sputum.

#### SILICOSIS AND TUBERCULOSIS

Silicosis is the only pulmonary condition which is known definitely to predispose to tuberculosis. The incidence of phthisis among workers in silica dust is many times that in the general population. In a majority of cases silicosis gives no symptoms until it is complicated by tuberculosis and most of those who die of silicosis die of tuberculosis. Tuberculo-silicosis progresses rapidly and is usually fatal.

It is often very difficult to tell whether or not the infection has been implanted on the original condition. The x-ray findings of second and especially of third stage silicosis closely resemble

those of simple tuberculosis or of tuberculosis and silicosis. The findings suggesting tuberculosis are pleurisy with effusion, constant post-ptussal rales in the apices, a preponderance of shadows in the apices, cavity formation, and fever, and loss of weight. A definite diagnosis can be made only by finding tubercle bacilli in the sputum.

It is often very difficult to distinguish simple tuberculosis from silicosis and tuberculosis. The bronchiogenic spread that occurs after hemorrhage produces x-ray findings that are practically indistinguishable from second stage silicosis. Widely disseminated fibroid tuberculosis, is, as far as I am concerned, indistinguishable from the third stage of the dusty lung. One can say that silicosis is not present only if portions of the middle lung fields are free of all disease. The similarity between the x-ray pictures of silicosis and miliary tuberculosis is well known.

An important problem is presented by those patients who, having been exposed to silica dust, develop tuberculosis without showing clinical or x-ray evidence of silicosis. Does the inhalation of the dust predispose to tuberculosis before fibrosis is demonstrable by the x-ray? In other words is there a pre-x-ray stage of silicosis and does this stage invite tuberculosis? It is my belief that there is and that it does, and that it must be assumed that anyone who, having been exposed to dangerous concentration of free  $SiO_2$ , later develops tuberculosis, has developed it because of that exposure. That statement will meet with serious criticisms and strong objections, but I believe that it is true.

There is another important and unsolved problem. What is the x-ray appearance of the lungs during the long free intervals which so frequently occur? Can one say that if, when a man stops work, he shows no x-ray evidences of silicosis, he is safe and will not later develop the disease?

#### SUMMARY

1. The clinical diagnosis of silicosis is often easy, often difficult.
2. There are no symptoms or physical findings which are diagnostic.
3. Dyspnea is the only constant symptom and limited chest expansion the only constant physical finding.
4. The clinical diagnosis rests upon three things, i. e.,
  - a. A history of exposure.



- b. A characteristic roentgenogram, and
- c. The absence of conditions which can simulate it.

5. The complications of sileosis are pulmonary tuberculosis, chronic bronchitis, bronchiectasis, emphysema, dry pleurisy and spontaneous pneumothorax.

6. Sileosis must be differentiated clinically and roentgenologically from pulmonary tuberculosis, miliary tuberculosis, chronic passive congestion, miliary carcinosis, pulmonary arteriosclerosis, miliary infections with certain yeasts and fungi, and a rare type of generalized bronchiectasis.

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## THE PATHOLOGY OF PNEUMOCONIOSIS

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*Introduction.* In his classical book on occupational diseases published in 1717, Bernardo Ramazzini referred in detail to pulmonary disorders that occurred in people employed in dusty occupations. Little attention was given to Ramazzini's work and many years had to pass before the diseases caused by dust were made the subject of systematic studies.

The pneumoconioses (pneumon-lung, konis-dust) may be caused by organic dust or anorganic dust, the latter being of much greater importance. Of the anorganic pneumoconioses the following types are usually distinguished: the anthracosis due to coal dust, the chalicosis due to dust rich in calcium salts, the silicosis due to free silica and the siderosis due to iron. There are two forms of siderosis of the lungs, namely the red iron lung which occurs in people exposed to ferric oxide dust and the black iron lung that is due to the inhalation of ferrous oxide. In recent years it has become recognized that it is chiefly the dust rich in finest silicon (quartz) particles which is dangerous while most of the silicates are relatively harmless. Coal dust and metallic dust seem to be of little significance if not combined with free silica. Thus, pneumoconiosis now is often identified with silicosis. Recently the fine fibres of asbestos (magnesium, calcium

silicate) have been found to cause a severe pulmonary fibrosis (asbestosis) which takes a more rapid course than silicosis. My discussion will be restricted to the two most important forms of pneumoconiosis: silicosis and asbestosis.

*Pathogenesis.* The amount of dust that is retained by the lungs depends upon the concentration of the dust particles in the inhaled air, the duration of the inhalation of the dust containing air and the size of the dust particles. The lighter the dust and the finer the dust particles the more dust is deposited in the lungs. They are only the particles of less than 0.01 mm. diameter which enter the alveoli. The larger particles settle upon the mucosa of the upper air passages from where they are eliminated by the action of the epithelial cilia, the contraction of the bronchial musculature and the secretion of the mucus glands. The irritation of the upper air passages by the coarser dust particles accounts for the fact that most of the cases of pneumoconiosis show a bronchitic component. In silicosis, this bronchitic component is slight, probably because of the small size of the quartz particles.

The majority of the silicon particles which enter the alveoli are less than 0.003 mm. in diameter and many of them may be so small that they are below microscopic visibility (Policard). Those which can be seen under the microscope appear as tiny, irregular crystals with sharp angles. These crystals are colorless and double refracting. According to Jones the quartz crystals are of less significance than minute fibres of hydrated silicates of aluminum and potassium (sericite—a mineral belonging to the mica group). Jones found the same minute fibres in the rocks which caused severe silicosis. Whether Jones' conception is correct remains to be shown.

The action of the inhaled silicon particles upon the lung may be twofold, namely mechanical and chemical. The mechanical action is suggested by the sharp angles and edges of the minute crystals. Behr and others attribute the greatest significance to the traumatization of the tissue. Silicosis is, however, an extremely slowly progressing disease and, once deposited, the silicon crystals continue to exert their deleterious influence notwithstanding the discontinuation of the exposure. It has been shown that finely distributed silicon is gradually dissolved in Ringer solution and Policard and with him the majority of the modern investigators assume that in the

tissues silicon is slowly transformed into a colloidal solution. This transformation is favored by the weakly alkaline reaction of the tissue fluids and the enormous free surface of the billions of tiny crystals. Policard calculated that the free surface of the silicon particles in the lung of a miner equals to almost half a square meter. Colloidal silicon is very toxic (Gye and Purdy) and like other electronegative colloids is stored by the reticulo-endothelial cells (Kettle). In discussing the relations between tissue fluids and silicon crystals Scheid speaks of "surface action" which comprises an intricate combination of processes among which absorption, electric charge, surface tension, hydrophilia and hydrophobia and giving off of molecules are the most important ones.

The concentration of the dust particles is greatest in the portions of the lungs with the most active respiration (Tendeloo). In these portions, namely the lower part of the upper lobe and the upper part of the lower lobe (the middle lung field), the circulation of the lymph fluid is most active which secures the quick resorption of the alveolar content. Hence, in the apical region and in the basal portions of the lungs the silicatic changes are but slight (Flemming-Moeller, Bergstrand).

In general, silicosis develops very slowly and it takes at least from 10 to 12 years before the changes are so marked that they cause clinical manifestations. Stewart points out that the most severe changes are found after an exposure of from 32 to 42 years. There are, however, cases of what is called "acute silicosis" (MacDonald, Piggot and Gilder, Gerlach and Gander, Chapman, Gardner, Kessler, Giese, and others). In these cases manifestations appear already after exposure of from four months to two years. Several factors seem to favor the acute development of pulmonary silicosis, the most important one being apparently the excessive amount of very fine dust with long daily exposure. Some of the cases of acute silicosis occurred in plants which manufacture scouring powder. It has been suggested, therefore, that a high content of the air of free alkali may favor silicosis. The studies of Nicol on workers in fluor spar mines are very interesting. The dust in the fluor spar mines contains only a small amount of free silica and yet the miners develop silicosis rather rapidly with distinct x-ray findings after three years ex-

posure. Nicol suggests a combined action of the fluor and silicon.

It is not the purpose of this brief review to discuss the chemical findings in silicosis. Suffice it to say that the opinions differ as to the silicon content of normal lungs. Some investigators consider a silicon content of the dried lung tissue of more than one per cent. as indicating silicosis. According to McNally the silicon dioxide content of the normal dried lung tissue averages 1.13 mg. per 1 gr. Any lung containing over 2 mg. of silicon dioxide per gram dried tissue indicates undue exposure to a dusty atmosphere. In this connection I would like to emphasize that the decision whether silicosis is present or not must rest with the pathologist and not with the chemist since the anatomical changes of silicosis are well characterized and since only the anatomical changes determine disability and death. There are several factors at work in bringing about the dangerous pulmonary fibrosis some of which are not chemical as shown by the fact that in different mines with identical silicon content of the air the incidence and severity of the pulmonary silicosis varies considerably. Much additional work is required in order to explain the differences which quite often exist between the chemical silicon content of the lung and the extent of the anatomical lesions.

Of the people working under apparently identical conditions in the same mine, quarry, tunnel or factory only a certain percentage develops silicosis. Great differences also seem to exist with regard to the rate of progression and severity of the pulmonary process. In order to account for these differences reference has been made to differences in the mode of breathing, to an individual disposition to fibrotic response (keloid disposition of Schridde) and to the importance of complicating infections. None of these theories has proved fully satisfactory and I believe that a close scrutiny of the mode of exposure of each case may be more helpful than the search for individual factors.

The asbestos fibres which enter the lungs in cases of asbestosis are considerably longer than 0.01 mm. One has questioned, therefore, whether these fibres reach the pulmonary alveoli. According to Gardner the asbestos fibres remain in the respiratory bronchioli from where they are carried into the stroma by phagocytic cells. Stewart makes the statement that, on an aver-



age, asbestosis is fatal after from 13 to 15 years. The pulmonary lesions are more diffuse than in silicosis with a distinct predilection for the basal portions. Asbestos is found in the lungs in two different forms, namely as black and opaque particles and as peculiar bodies (asbestosis bodies—Cooke, McDonald, Lynch and Smith, et al.). These asbestosis bodies are pathognomonic of asbestosis and can be easily detected in sections and scrapings of the lungs and in the sputum, especially after enrichment with antiformin or digestion with sodium hydroxide. The bodies are up to 0.075 mm. long and are composed of small discs with rounded margins arranged in form of a tapering rod with bulbous extremity (Hadfield and Garrod). They are golden yellow or brown in color and give a distinct iron reaction. In lung sections they are often seen surrounded by foreign body giant cells. The asbestosis bodies result from changes which the asbestos fibres undergo in the tissues. The soluble parts of the fibres are removed by the tissue fluids and a delicate frame of silicon remains which absorbs proteins. Thus, the needle shaped frame becomes surrounded by a mantle of proteins which coagulate and into which the silica is dispersed. This initiates the disintegration of the frame which is finally resorbed (Berger).

*Gross Pathology.* In the early stages of silicosis the findings are not characteristic. There is a slight to moderate increase of the connective tissue about the larger bronchi and blood vessels which accounts for the accentuation of the hilus markings on x-ray examination. After an exposure of from one to two years the first characteristic nodules appear. They are very small, from 0.3 to 0.4 mm. in diameter and are rather felt than seen. The nodules gradually increase in number and size, and after about five years measure from 0.7 to 0.8 mm. in diameter (Gardner). Nodules larger than 1.5 mm. are rare (Mavrogordato, Gardner, Giese). They are spherical in shape, sharply defined and very firm, protruding as dark gray or black granules over surfaces made by cutting. They can be readily seen on the pleural surface of the lungs. The dark coloration is due to coal dust, the purely silicotic nodules being pearly gray. The nodules are most numerous in the midportions of the lungs and are first seen along the bronchi and blood vessels and on the pleural surface. Later, the nodules

are found throughout the lung parenchyma. The appearance of the nodules is associated with a moderate alveolar emphysema. In the early stages the silicotic nodules are difficult to distinguish from healing or healed miliary tubercles (Tesseraux and Ruiz).

In the later stages, the nodules coalesce. Indurative, sclerosing changes about the nodules which are usually attributed to complicating infections cause the lung tissue to become gradually replaced by a very dense and deeply anthracotic scar tissue. The intensive anthracosis is the result of the blocking of the lymph vessels by the silicotic process (Cummins). Solid, deep black and firm areas are finally found which occupy the midportions of the lung sparing the apical parts and the base which become emphysematous. This emphysema may be so marked that by rupture of one of the blebs a spontaneous pneumothorax develops (Behr). At this stage the lungs are usually firmly adherent to the wall of the chest.

In the center of the diffusely consolidated areas which cut like wood one finds often small cavities which are surrounded by friable tissue and are filled with a thick fluid black like India ink. These cavities are from one-half to one and one-half centimeter in diameter. The liquefaction of the dense scar tissue has attracted much attention (phthisis atra) and I fully agree with those investigators who stress that the cavities are due to a non-infectious, autolytic liquefaction of the poorly vascularized scar tissue (Giese, Gerlach, Koopman, Stern, Staehelin, Badham and Taylor). In addition to liquefaction the scar tissue may undergo calcification and eventually also ossification (Giese).

The replacement of large parts of the lungs by a very poorly vascularized scar tissue and obliterating changes in the branches of the pulmonary artery interfere greatly with the pulmonary circulation. The increase in resistance to the blood flow causes hypertrophy of the right ventricle of the heart, the wall of which becomes thickened to from 6 to 10 mm. as compared with a normal thickness of from 3 to 4 mm. With the exhaustion of the reserve power the hypertrophic ventricle becomes decompensated and failure of the right heart is a common cause of death in advanced pulmonary silicosis.

The silicotic induration of the lungs is usually associated with similar changes in the tracheo-bronchial lymph nodes. There are cases in which

the silicotic induration is more marked in the lymph nodes than in the lungs. The purely silicotic lymph nodes are moderately enlarged. They retain their shape and do not become adherent to adjacent structures. They are deep gray or black in color and may undergo the regressive changes described in the lungs. Perforation of indurated lymph nodes into bronchi or blood vessels is due to complicating tuberculosis (Giese). In acute silicosis the lymph nodes may be spared (Gardner).

The occurrence of silicotic nodules in the liver and the spleen and bone marrow indicates that silicon particles enter the blood stream. In the spleen the nodules may be visible to the naked eye (Giese). Chemical examinations have shown a marked increase in the silicon content of liver, spleen and bone in cases of silicosis. The kidneys contain but little silicon (Hackmann).

In asbestosis, the changes affect mainly the lower lobes. There is a diffuse induration of the lungs with emphysema along the margins, pleural thickening and, in contrast to silicosis, a tendency to bronchiectasis. Gardner says that in asbestosis the fibrosis involves every portion of the pulmonary frame work, alveolar walls, pleura, interlobular septa and the large bronchial and vascular trunks. The changes in the tracheobronchial lymph nodes are insignificant (Gardner). At autopsy the diagnosis of asbestosis can be readily made by demonstrating the characteristic bodies in the fluid expressed from the indurated tissue (Stewart).

*Microscopic Pathology.* Particulate matter which enters the pulmonary alveoli is quickly taken up by phagocytic cells which are derived from the cells of the alveolar septa (septal cells, alveolar phagocytes). In silicosis too, phagocytosis of the tiny crystals is the first defense reaction and the smaller the crystals the quicker is also their phagocytosis. The crystals injure the cells which swell up, lose their motility and disintegrate. Together with the cellular debris the liberated crystals are taken up by new phagocytes and are gradually transferred from the lumen into the wall of the alveoli and the radicles of the pulmonary lymph vessels. Some of the large, silicon filled cells accumulate in the finest bronchioli and are expectorated or remain in the bronchioli stimulating reactive changes of the bronchiolar walls. Because of the paralyzing effect of the crystals upon the phagocytes (Poli-

card) the transfer progresses very slowly. In the lymph vessels the swollen cells filled with silicon particles and free clumps of silicon crystals pile up and block the lymph flow. The lymph stasis stimulates connective tissue proliferation about the bronchi and blood vessels. From the blocked lymph vessels some of the silicon particles are removed by the local histocytes and carried into the surrounding connective tissue. The majority of the crystals are filtered out in the small lymph nodules along the bronchi and underneath the pleura. Progressing blocking of the lymph vessels prevents the removal of subsequently inhaled dust which now remains in the alveolar wall piling up to larger aggregates.

Wherever the silicon crystals pile up they become surrounded by spindle shaped cells. These cells enter the clumps of crystals and produce collagenous ground substance. Layer after layer of concentric fibrils is laid down about and between the crystals, the fibrils fuse to coarser trabeculae which become hyalinized and a sclerosed granuloma results which is very characteristic of silicosis. The silicotic granuloma consists of a center of whorls of hyalinized connective tissue with scanty and deeply stained nuclei which is surrounded by a more cellular tissue. Wedged in between the hyalinized trabeculae one finds the fine crystals of silicon and a varying amount of coal dust. The smallest coal particles (soot) are attached to the silicon crystals and Policard speaks of a tattooing of the crystals. The periphery of the nodules contains much more silicon than the center (Belt). The young nodules are arranged about small arteries and arterioles. Policard describes a juxta arteriolar, Giese and Schridde emphasize a periarteriolar location. The inclosed vessels become later obliterated by proliferation of the intima (Gerstel, Giese, Behr, et al.) and only a few elastic fibrils remain. Mavrogordato mentions recanalization of the obliterated arterioles.

In ordinary sections mounted with balsam the silicon crystals escape detection because of their high refraction. In order to demonstrate the crystals in sections several methods have been recommended. Watkins-Pitchford and Moir digested the sections with concentrated nitric acid. Giese mounted his sections in media of lower refraction index (cedar oil, glycerol) while Policard and Scheid made use of the microincineration method. According to my experience the



microincineration gives the most satisfactory results. Examining an incinerated section under the polarizing microscope one sees the silicon particles as brilliant crystals against a velvet black or light gray background. The crystals vary from 0.001 to 0.008 mm. in diameter. Microincineration causes the coal pigment to disappear while the iron granules are easily identified by their rust brown color.

The first silicotic nodules to become visible correspond to hyalinized peribronchial and subpleural lymph nodules (blockade nodules of Mavrogordato). In the later stages the nodules do not show definite relations to preexistent structures. The nodules increase in size by apposition of indurated lung tissue (Bergstrand). Older nodules become often calcified and I believe that the calcium is derived from the tissue fluids and is not related to calcium salts in the dust.

In advanced pulmonary silicosis the nodules form groups which are embedded with a very dense and deeply anthracotic scar tissue. The nodules now are less sharply demarkated than in the earlier stages of the disease. In the fibrosed areas the lung structure is completely obscured and the larger bronchi and blood vessels only can be differentiated. The diffuse fibrosis results from a thickening of the interlobular septa, of the peribronchial and periarterial connective tissue and of the subpleural layers and from a collapse induration of the alveoli. The small groups of alveoli which remain in the sclerosed areas are often filled with alveolar phagocytes stuffed with coal pigment. Organization of alveolar exudate may add to the obliteration of the lung parenchyma. The walls of the bronchi are thickened and the mucosa is infiltrated by round cells and plasma cells. The medium sized and larger arteries and veins show varying degrees of intimal proliferation.

In the tracheobronchial lymph nodes nodules similar to those in the lung are formed. They are particularly rich in coal pigment and are first seen in the cortex, in the region of the secondary follicles. Later, they extend into the medulla (Giese). In cases of slight silicosis there may be only a diffuse sclerosis of the reticulum without nodules.

In asbestosis the characteristic nodules are less well defined than in silicosis. In some cases they may be entirely absent (McDonald). An extreme, universal fibrosis dominates the microscopic pic-

ture (Lynch and Smith). There is a diffuse interstitial pneumonia or complete obliteration of the alveoli. The golden brown asbestosis bodies are present in great number and can be found in the lumen of the alveoli, bronchioli and bronchi and in the areas of less advanced interstitial fibrosis. In the lumen of the alveoli many of the bodies are surrounded by foreign body giant cells. Lynch and Smith described a golden brown, granular pigment suggesting disintegrated asbestosis bodies.

#### THE RELATION BETWEEN SILICOSIS AND TUBERCULOSIS

The silicotic fibrosis makes the lungs very prone to infections and it is especially the tuberculosis that follows the silicosis like a shadow. Gardner says that more than 75 per cent. of the people who contract silicosis die of tuberculosis which may manifest itself many years after the exposure to the dust has ceased. Simon, Strachon and Irvin, who studied a severe form of silicosis common among South African gold miners, distinguish between simple silicosis and infective silicosis of which tuberculo-silicosis is the most important form. Under the influence of the tuberculous infection the silicotic lesions change their appearance. The tuberculo-silicotic nodules are larger than the simple silicotic nodules (Mavrogordato). They fuse together and in the center there are evidences of necrosis which may be very slight (Mavrogordato, Simon and Strachon). Besides the mixed tuberculo-silicotic nodules simple silicotic nodules are often present and about these nodules tuberculous granulation tissue may develop.

The most striking effect of the tuberculosis upon the silicosis is the formation of large areas of dense sclerosis in which the nodules become obscured. Thus, the picture approaches that which has been described in the preceding chapters as advanced, nodose form of silicosis. Many investigators, therefore, maintain that this advanced, nodose form is always tuberculo-silicotic in nature (Watkins-Pitchford, Mavrogordato, Siegmund, Gross, Ickert, Huebschmann, Husten, Policard, Scheinin, Gardner, et al.). Admitting the importance of infection in determining the nodose character of advanced silicosis it remains to be proved that this infection is always tuberculosis. I saw several cases of advanced nodose silicosis which had died from

decompensation of the hypertrophic right heart and which on careful microscopic examination failed to show any evidences of tuberculosis (see also Giese, Bergstrand, Berg, and others). The positive biological test for tubercle bacilli is of doubtful value since tubercle bacilli have been demonstrated in normal lungs and lymph nodes of hospital patients. According to Gardner granite dust with a free silicon content of about 35 per cent. produces nodules only in the presence of a tuberculous infection.

Since the relations between tuberculosis and silicosis are so intimate that a type of lesion results which does not occur in the uncomplicated form of the two diseases tuberculo-silicosis has often been considered a disease *sui generis*. Anatomically the differences between tuberculo-silicosis and other forms of benign, sclerosing pulmonary tuberculosis are rather quantitative than qualitative and in a doubtful case the examination of incinerated sections under the polariscope will have to decide whether this case is silicotic or simple fibrotic.

The stimulating influence of the silicosis upon the tuberculous infection is well illustrated by animal experiments of which those of Gardner are of particular interest. Gardner used a strain of tubercle bacilli which was so little virulent that it produced in guinea pigs a regressive, non-fatal disease. If this strain was injected into guinea pigs that had previously been exposed to prolonged dusting an extensive pulmonary tuberculosis with involvement of the abdominal viscera developed which caused the death of the animals. By reinoculation of the strain into normal animals it could be shown that the strain had not increased in virulence. Kettle found that in animals injected with colloidal silicon the tubercle bacilli proliferated much more luxuriously than in normal controls. I do not think that it is necessary to assume a direct influence of the silicon upon the tubercle bacilli or immunological phenomena (e. g. absorption of complement) in order to account for the effect of the silicosis upon the tuberculosis. The local tissue damage caused by the silicon crystals is apparently sufficient to favor the spreading of the infection.

The silicosis may affect a lung which has been the site of a mild tuberculosis stimulating it to more active progression. In the majority of the cases the tuberculosis is added to the silicosis (addition tuberculosis of Redeker). This addi-

tion tuberculosis may result from the endogenous exacerbation of a latent focus, especially in a lymph-node, with hematogenous dissemination to the lungs, or one may be dealing with a new, exogenous superinfection. According to my opinion the later mechanism is of greater significance. This exogenous superinfection accounts for the differences in the frequency of tuberculo-silicosis in different localities. If a few cases of open tuberculosis are scattered among people exposed to silicosis the infection is apt to spread rapidly, in particular under poor hygienic conditions.

The classical form of tuberculo-silicosis is a relatively benign, slowly progressing, isolated pulmonary tuberculosis with much scarring. The tuberculosis intensifies the sclerosing effect of the silicosis while the silicosis favors the fibrotic involution of the tuberculous lesions. In the terminal stages exudative-caseous and ulcerative lesions may develop (Eickenbuch and others). In acute silicosis, Gardner found a predominance of exudative caseous processes.

In asbestosis the predisposition to tuberculosis seems to be less marked than in silicosis. Wood and Gloyne found in a series of 57 cases of asbestosis 10 complicated with tuberculosis. Of these ten cases two succumbed to the tuberculosis. The tuberculous lesions were caseous in character with little connective tissue formation and giant cells were scanty. Asbestosis bodies could be found in the caseous areas side by side with clumps of tubercle bacilli. Gardner and Cummings found destruction of the asbestosis bodies in the caseous areas.

#### THE RELATION BETWEEN SILICOSIS AND CARCINOMA OF THE LUNG:

In recent years the apparent increase in frequency of pulmonary carcinoma has caused much speculation and reference has repeatedly been made to dust as a possible pathogenetic agent. There are, however, no indications that silicosis predisposes to carcinoma of the lung (Hardfield and Garrot, Strachan, Saupe, Ickert, Schulte, di Biasi and others). In 90 cases of primary carcinoma of the lung which I have examined at autopsy during the last few years there was not a single case with anatomical evidences of silicosis. Silicosis does not cause excessive epithelial proliferation or epithelial metaplasia which so often precede the development of a carcinoma.



Schmorl referred to scars from perforations of indurated lymph nodes into bronchi as source for carcinoma. As pointed out in a preceding chapter these perforations are due to tuberculosis and not to silicosis.

The great frequency of malignant pulmonary neoplasms among the miners in the cobalt mines of Schneeberg and the radium mines of Joachimstal cannot be related to silicon (Saupe). After excluding cobalt and arsenic Saupe comes to the conclusion that the high radium emanation in these mines is of greatest importance. In the course of 15 years the intake of radium chloride is estimated at about 55 mg. The carcinogenic effect of radium also is shown in industries using radioactive substances.

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### RADIOGRAPHIC VISUALIZATION OF FIBROSIS PRODUCED BY DUST INHALATION

F. FLINN, M. D.

DECATUR, ILL.

In the studies of disease entities we have almost always started our investigations with the terminal stages and worked backward to their etiological origins and early pathological processes. Consequently the widest dissemination of facts and most voluminous writings have concerned the advanced or moderately advanced stages of most diseases. This is true because the clinician is the first to meet and attack a disease as a clinical entity and his description of its course, symptoms and physical findings is the foundation upon which theories and facts must stand. He needs little or no help to diagnose advanced or moderately advanced stages of disease but incipency or very early pathology is usually most difficult or impossible to recognize without aid or confirmation of laboratory procedures.

Pneumoconiosis is no exception.

It is my belief that any dust of such fineness as to reach the alveoli, and breathed in sufficient quantities for a long enough period of time, will produce some visible degree of lung fibrosis on the radiograph. Silica dust produces the most dense fibrosis. The pathologist has traced the progress of the dust particles from the alveoli, by phagocytosis into and through the pulmonary lymphatics, and described their deposition in

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lymph spaces and nodes, where by irritation they produce either the linear or nodular fibrosis seen on the film.

As pneumoconiosis reaches a rather advanced stage before it presents clinical symptoms and physical findings sufficiently prominent for diagnosis, radiographic visualization must be relied upon for the early pathology. This is particularly true if any attempt is to be made to prevent or arrest the progress of the disease.

In all occupations where dust inhalation may be a hazard, it is advisable to radiograph the chest before employment and to determine the extent of lung fibrosis. Individuals with extensive fibrosis or other pulmonary lesions should not be employed in dusty occupations. All persons working in dust producing operations should be radiographed every six months to discover early lung changes and to serve as a check on preventive measures.

Serial radiography is as necessary for the prevention and control of pneumoconiosis as it is for tuberculosis.

Pneumoconiosis, according to the progress of the disease, is usually described in three stages, namely, first, second and third. The clinical, pathologic, and radiographic findings coincide to a remarkable degree. The increased radiographic densities are due to increased fibrosis and not to shadows cast by dust deposits.

In the first stage the radiograph shows an increase of the lung root shadows beyond normal limits due to enlargement of the lymph nodes and thickening of the larger bronchi and vessels. The branchings of the bronchial and vascular trees appear more numerous and are wider and denser than normal. As the pleura is approached the size and density of the shadows tend to decrease. The spaces between the more prominent markings, which in the normal lung are usually clear, show many fine linear shadows. The markings of this stage are all linear in character; no mottling is seen and adhesions are rare. The condition is bilateral, with a fairly even distribution in all lobes; however, the right lung or the lower lobes may show the greater advancement, due to the greater amount of air going to these locations. Passive congestion and chronic infection may produce somewhat similar changes, but the markings are not usually so clear-cut nor so definitely symmetrical as are those of dust pathology.

In the second stage, the hilum shadows and linear markings of the broncheovascular trees usually show further increase in size and density, but, in addition, there are seen many small, round, discrete densities which produce the effect of generalized mottling on the film. The mottled appearance is due to fibrosis of the many lymphoid tissue deposits of the lymphatic system. The discrete shadows vary in size from about one millimeter to ten millimeters in diameter, the larger being partly due to coalescence of smaller nodules. The nodules show a fairly even distribution throughout both right and left lobes but are usually more numerous in the right. The pleura is thickened in some areas, and the diaphragm, particularly the inner portions, may be irregular and roughened from adhesions.

In the third stage the extensive generalized interstitial fibrosis displaces the more or less discrete and sharply defined markings of the first and second stages. The small discrete nodules of the second stage coalesce to form larger irregular masses which, on the radiograph, produce the "snow-storm effect," characteristic of this stage. If the fibrosis continues, with further confluence of the larger densities, massive consolidation is produced. The consolidations are usually bilateral, and in extent may involve any part of a lobe or an entire lobe, most often the upper. This stage shows more extensive pleural thickening and adhesions, particularly to the diaphragm, often causing marked elevation and irregularity. The heart and large vessels are pulled toward the right side and often occupy a vertical position in the thorax.

The existence of pneumoconiosis establishes a predisposition to intercurrent respiratory infections, and tuberculosis is often a complicating factor. Tuberculous infection may become engrafted on dust pathology during any stage, but most usually in the second or third stages.

As its presence is frequently a difficult matter to determine from the radiographic film alone, a few differential points will be noted here. Pneumoconiosis is bilateral, symmetrical, affects all lobes, the shadows are clear-cut, well defined and hard in appearance, the apices are usually clear until far advanced, and no cavitation occurs. Tuberculosis is ordinarily unilateral, not symmetrical; the apices become involved early; it is generally confined to the upper lobes; the shadows are not so clear-cut or well defined and



are softer in appearance, and cavitation occurs with advancement.

#### CONCLUSIONS

In conclusion, I wish to emphasize the following facts:

1. Inhalation of dusts is essentially an industrial hazard, many and varied occupations presenting it.

2. So far, silica dust has been found to be most harmful, but other dusts produce lung changes to a lesser extent if conditions are suitable.

3. Only very fine dust particles, less than 10 microns in diameter, reach the alveoli and cause pathology.

4. The changes produced are fibrosis of the lymphoid deposits and lymphatic drainage system.

5. The radiograph presents a definite picture of the progress of the disease. It is the easiest, surest, and often the only method of diagnosis, and we should, more generally, interest ourselves in further study of this condition.

#### DISCUSSION ON SYMPOSIUM ON PNEUMONOCOONIOSIS

Dr. Don C. Sutton, Chicago: When it was first decided we should have a symposium on pneumoconiosis, apparently the reason back of it was the legal difficulties that have developed during the last three or four years.

It was intended that there should be a lawyer on this symposium. In looking over the field of men who were qualified to discuss the subject, we were unable to find anyone who really knew something about silicosis, except men who were employed by the larger industrial concerns, and it seemed to be impossible to get a completely unbiased legal opinion.

It was rather interesting in talking to some of these lawyers to learn that after all they look at it with a sense of fairness, that they feel the industry has a certain liability so far as the laborer is concerned, but that their greatest difficulty is the fact that no two doctors agree on the findings in a particular patient or on the diagnosis. So they are always able to get expert testimony on both sides of the question.

We have heard very well discussed this afternoon, first by Dr. Sappington, the study of the hazards in various types or trades so that apparently this is the point which both industry and we as doctors are interested in—that of prevention. And certainly industry is just as much interested financially in preventing silicosis as we are purely physically.

Dr. Head and Dr. Flinn have covered fully the field of diagnosis, with Dr. Jaffé, of course, completing the pathological picture.

We still are left without knowing how to judge the

patient that we see, and I think most of you are in the same position I am in practicing medicine. We want to know how sick our patient is, how great his disability is, and possibly his future.

I think I would find it very hard to get on the stand and testify fairly to either side with my present knowledge of pneumoconiosis. There are certain factors though, I think, that offer a chance of evaluating the amount of disability.

As Dr. Jaffé has said the circulation is seriously impaired. As a result of this destruction of circulation there is an increased load on the right side of the heart. Another factor is the incomplete aeration of the blood. The fibrosis of the lung itself reduces greatly the normal elasticity of the lung so that we find these patients have a greatly reduced vital capacity.

There are certain studies that point towards the fact that when the tidal air is increased up to forty per cent. above normal, there is a definite decrease in the amount of oxygen in the blood. It is also quite definitely known that a decrease of the oxygen in the blood to eighty-five per cent. or ninety per cent. of normal causes some cyanosis and definite disability of the patient. So that we do have some tests that I think could be used to evaluate somewhat the amount of dysfunction that the particular patient has.

I am talking, of course, entirely of uncomplicated cases as Dr. Head and Dr. Jaffé both called attention to the fact that complications do tend to occur—bronchitis, secondary infections, and tuberculosis. But for the uncomplicated case, the physical examination and the routine x-ray does not give us an adequate picture of measure of the patient's disability.

It seems to me the study of vital capacity, tidal air and of oxygen consumption does give something to go on.

Wm. D. McNally, Chicago: The theory of silicosis being caused by colloidal silicate has probably been now exploded. At the time Guy and Kettle gave that theory to the people they were not acquainted with the French literature regarding the presence of fluorides in the blood. Sodium fluoride has great affinity for the silicon dioxide molecule, and in the extremely small size that the silicon is present in the lungs, this sodium fluoride tries to establish an equilibrium just the same as sodium bicarbonate does in our blood stream.

The silicon dioxide is acted upon chemically by the fluoride and forms a silicon tetrafluoride. This silicon tetrafluoride by its toxic action causes the fibrosis that you have seen.

In another month or so we will have ample proof of that for you as we are working upon that phase of silicosis.

Dr. Jaffé does not think much of the chemical theory of silicosis. I disagree with him. Of course I have worked more on the chemical side than Dr. Jaffé has.

Silicon dioxide is a normal constituent of every tissue in the human body. We find it in the fetal lung from six months up. It is found in babies' hair, it is found in the nails of the adult, it is found every place in the human body.

We have run several hundred lungs and I have

searched the literature quite thoroughly—German, French and English—and all investigators agree that there is a normal silicon dioxide content in the human lung. That is close to 1.5 mg. per gram of dried tissue. Occasionally we have found up to 1.8 and 1.9. Therefore, anything that is over two milligrams per gram of dry tissue, shows an exposure of dust, and a pathologist cannot prove that. It takes a chemist to prove it.

I want you to understand that. There is no way that I can demonstrate by sections, Dr. Jaffé, or anybody else, that a lung has more than one and a half milligrams of silica per gram of dried lung. When it reaches three and nine-tenths milligrams per gram of dry tissue, and that is the smallest amount where I have found a beginning fibrosis, it can be noticed microscopically. It is nearly always over five before this can be demonstrated. The German authorities say seven, but we have found it several times when the silica was a little over five milligrams. So we can determine definitely and quantitatively, what you cannot do in pathology, the amount of silicon dioxide in that lung, and the damage. We know when there is 5.2 milligrams per gram of dry tissue there is damage to that lung. When it gets up to eight, there is a lot of damage. When it gets up to twenty-nine, we still know more about it.

Take these granite workers in Vermont. The lungs I have examined ran up to 29. We know that lung is all shot to pieces. There is no lung there hardly at all, so I want to take exception that the chemical phase of silicon dioxide should not be ignored.

One of the speakers said that washing powder was silicon dioxide, or contained large amounts. Technically that is wrong. Dr. Head, silicon dioxide is not in washing powders. It is in scouring powders and scouring bricks, so just change that wording in there, because maybe the ladies will not use washing powder.

When Dr. Sappington correlates all of his data he should correlate the data of the pathologist along with the chemist and then you will have a clear picture of what silicosis is.

## EASIER TRANSFUSIONS FOR THE GENERAL PRACTITIONER

F. J. OTIS, M. D., F. A. C. S.

MOLINE, ILL.

When a general practitioner recommends a transfusion and it becomes his duty to perform the operation, it is a very important matter. He must deliver one hundred per cent. He must not fail. Otherwise the life of the patient is on his shoulders. Once undertaken he cannot side-step nor postpone the responsibility. The ignominy of a failure is all his.

Therefore, out of the wealth of medical his-

tory I wish to call your attention to those points of medical art which have given us these ten

### PROCEDURE IDEALS

1. Needle in the vein without operating.
2. Closed aseptic method.
3. Undiluted blood gives fewer reactions.
4. Small container so blood passes over quickly.
5. No loss of blood.
6. No back flow to the donor.
7. Saline or Ringer's solution ready for patient's or donor's need.
8. Time even when a slow transfusion is necessary.
9. Time to change donors if desired.
10. Time to reset needle when necessary.

The nearly three hundred years from transfusion records of old Pepys' diary past the impellers, cannulas, and quills to Crile's intima to intima cannula of 1898, gave us little of value because we had not yet come to the great discoveries which were necessary to make blood transfusion practical and possible. It did tell us one thing we have largely forgotten about embolism from injected air. That is that an amount below twenty cubic centimeters might not be harmful.

### THE GREAT DISCOVERIES<sup>1</sup>

1. 1890: Slow clotting of blood in a vein or vessel. (Transfusion by suture).
2. 1899-1911: Agglutination leads to typing. (Transfusion becomes safe).
3. 1895-1911: Oil and paraffin coatings slow clotting. (Kimpton-Brown, Percy, Vincent tubes).
4. 1915: Citrated blood transfusion by Lewisohn<sup>2</sup> and Weil. (Standard method of the Great War).
5. 1914-1924: Intravenous drip popularized by Mates<sup>3</sup> keeps needles open for days.

Inability to measure the blood and the necessity of an operation has lessened the value of the first great discovery.

Typing was the second and key discovery for transfusion success. Incidentally, it tells why the homeopathic syringe dose of the nineties oft repeated was more successful than the calamitous allopathic doses of blood. Today, in the presence of some of the subagglutinins, it is far safer

<sup>1</sup>Read before Section on Surgery at annual meeting of Illinois State Medical Society, at Springfield, May 16, 1934.



to give a repeated small dose than the single large dose now so easily accomplished.

According to Mason<sup>4</sup> seventy-four per cent. of our hospitals are using the Moss classification. As an international classification is coming forward, recommended by Landsteiner, the discoverer of agglutination, we should keep before us their relationships.

1927 International. ....	O	A	B	AB
1907 Jansky .....	I	II	III	IV
1910 Moss .....	IV	II	III	I
Percentage of occurrence.....	45	42	10	3

The practical use of Moss' typing was scarcely under way, and the Crile and Carrel successful transfusions were but a few years past when Curtis and David<sup>5</sup> brought forward the third



Fig. 1. A simple direct method.

great discovery, the use of paraffin coating to delay clotting. Oil had been used in needles and cannulas since 1895, but paraffin was more suitable for tubes. In 1913 Kimpton-Brown<sup>6</sup> popularized the method, assisted in the same year by Percy<sup>7</sup>, and later Vincent.

Hardly had these methods gotten under way when the fourth great discovery came forward in 1915 with its simplicity. It required no operation to get the donor's blood. Citrated blood kept for hours, and even days. The Great War demanded a simple method, so under the advice of Bernheim the Lewisohn-Weil method of citrating the blood with first 0.2 per cent. and

later 0.25 per cent. was made the standard. The open method of collecting the blood was unpleasant to the artistic surgical technician, so a closed method was included in the War standard.

Thus modified, this method had all the procedure ideals except elasticity of drawing. Often one's needle clotted with only a portion of the desired dose drawn. Apparently this need was early anticipated by Hartman<sup>8</sup>, a young army officer who devised a method and later made a special needle to admit citrate to the blood as it flowed out the needle into the tubes. The collecting tubes were thus kept clear of coagulation. The momentary pinching of the collecting tube would flush the citrating solution into the needle. This procedure made the citrate method meet all our ideals. Later Doctor Pond<sup>9</sup> rediscovered and reemphasized the importance of needle citration. Doctors Cowles and Antz reported a device to accomplish the same purpose in a more complicated manner, but possessing the far more ideal gravity principle.

Having overlooked these reports, I exhibited here a year ago a B-D Y observation tube to admit the citrate after leaving the needle.

*A Simple Ideal Citrate Method.* Permit the 2.5 per cent. citrate solution to pass a bulb drip indicator and Hoffman clamp into the Y observation tube, citrating the blood just after it leaves the needle. Use a ten cubic centimeter local anesthetic syringe to aspirate the citrating blood, and by means of a salvarsan three way stopcock discharge the blood up into a salvarsan tube from which it may pass to the recipient by gravity. It might even be transfused immediately. The needle is automatically flushed with citrate while discharging the blood from the syringe. A recent improvement is the slowing of the flow to the patient, using a closed drip bulb to observe the rate of flow.

A five hundred cubic centimeter dose of blood would require 1.25 grams of sodium citrate. The body takes 5 grams without harm.<sup>11</sup>

Because of citrate reactions it is well to note some experimental work on citrate toxicity being done at Vanderbilt University.<sup>12</sup> It suggests when the calcium content of the blood has been depleted, as it often is in patients requiring transfusion, a smaller dose than 5 grams may be toxic. Possibly there may lie the reason why the citrate method gives double the reactions noted with the whole blood methods.

While I regard the intravenous drip, popularized by Matas, as the fifth great discovery, flushing really was introduced to transfusion, for maintaining the cannulas open, by Satterlee and Hooker in 1914.

The value of their suggestion was lost in the hurry of the Great War. They applied it to the most needy method, the paraffin tube method. They used a very small paraffined container, and frequently passed from donor to recipient, fulfilling the ideal which demands but a small amount of blood out at a time. Unfortunately they used special gold cannulas, which I suspect prevented general use, for I have ob-



Fig. 2. A simple ideal citrate method.

served that a gold or gold-plated needle for some reason has about five times the drag of a poorly polished steel needle passing through the tissue.

Even today the paraffined tube method needs a rediscovering of their methods to add elasticity in securing the blood.

When a surgeon operates on a desperate case, it is well to be also ready to transfuse blood. Doctor Collins of Peoria says: "If you anticipate the need of fluids after an operation, it is well to start the hypodermoclysis before the operation." Too frequently when you need transfusion, most of it cannot be accomplished in time.

The Matas drip discovery, familiar to all surgeons, makes possible

*A Simple Transfusion Method.* First put a three way stop-cock in each of two Matas intravenous drip outfits to control the drip. Connect one to the patient to be operated on, and the other to a suitable donor. Then at any time during the operation an assistant can draw any desired amount of blood from the donor and inject it into the patient through the three way stop-cocks. He can repeat when necessary. It makes a very simple whole blood transfusion, always under control; and due to the drip a far more elastic method in reference to time than the non-drip syringe methods.

Of the two methods to keep the donor's needle active, the flushing and the oiled obturator, the latter was early introduced with the syringe method.

While small amounts of blood had been injected in the nineties, Lindeman<sup>13</sup> brought forward an efficient multiple syringe method in 1913. He used the sharp obturator in his cannulas and a thorough flushing of the syringes between fillings. The method required two operators, besides a nurse to wash the syringes, but it was the most effective method in that it gave eventually the smallest percentage of reactions.

If you follow Lindeman's instruction in placing the cannulas, you would not have so much trouble today while using the needle, provided it contained an obturator that could be extended beyond the needle point.

To keep the needle in place some have fastened it to the skin with a cambric needle or adhesive plaster. Others have placed a rubber tube between the needle and point of attachment to lessen the consequences of a false motion while attaching.

The syringe type of transfusions have followed two lines of development to meet our ideals. They are the direct syringe and the syringe and stop-cock combination.

Doctor Strauss<sup>14</sup> followed the Lindeman multiple syringe method. He used an obturator to keep the needle open, the Watson<sup>15</sup> cambric needle, popularized by Pemberton<sup>16</sup>, to secure the vein, and another cambric needle to fasten the transfusion needle securely to the skin. He used three one hundred cubic centimeter syringes.



The method meets most of our needs and most of our ideals.

However, the stop-cock controlled syringes, started by Unger,<sup>17</sup> have met our ideals most perfectly. While Brines<sup>18</sup> modified it to a straight non-flushing two syringe apparatus, he exchanged its elasticity for speed. To keep this improved speed, Martin<sup>19</sup> had to put in an extra three way stop-cock to admit flushing solutions, and thus regain Unger's former elastic qualities.

Where the blood syringe is depended upon also to flush the system, one is lost when its blood film coagulates and stops it. It is then that the value of the gravity drip, to keep the needles of the patient and donor open, becomes apparent.

Some of the excellent modern instruments turn a valve or rotate a plunger to fill and empty. They also have a mid position for flushing. There are others possessing very simple action. They have just a "push and pull," or "turn a crank" that operates them so very automatically. To do so, however, most of them have sacrificed the possibility of flushing.

While Martin made a two man double syringe out of Unger's, James made a one man non-reversible, continuous flow, double syringe apparatus that should have had more users. I suspect its lack of popularity among the general practitioners was due to the need of the flushing principle. Morse introduced a stop-cock near each needle to pump saline into the tubes. But the syringes when congealed could not flush the needles, and it was also necessary to make the device temporarily reversible to flush to the donor.

After trying a non-flushing, continuous flow, double syringe I undertook its improvement by following the Martin and Unger modification, and introduced two stop-cocks instead of their one. This provided for drips to each needle.

With that instrument I could transfuse a small amount every ten minutes for an hour or two if I desired. It gave me the full extreme of elasticity.

When one observes the placing of the needles and the use of the thumb to prevent loss of blood, and sometimes notices the contamination of the needle, one wishes there were cover lids or caps on the obturators to protect the end of the needle.

I have used a Luer-Lok rubber tube adapter (B-D H/468L) as a cap to protect the needle and serve also as a handle while inserting the needles. It would also hold a wire obturator back while inserting until time to advance it beyond the point in the vein.

Allow me also to call attention to Brooks' art in using the needle for the Kimpton-Brown method. He says after the needle is in the vein compress the vein over the needle point with the ring finger. Then withdraw the obturator and there will be no loss of blood while you connect up. Do the same in disconnecting.

### *The Ideal Instrument*

1. Continuous flow saves time.
2. Standard replaceable syringes.
3. Operates by a simple to and fro motion.
4. One way flow not reversible.
5. Locked against back flow.
6. Easy finger assembly.
7. No loss of essential small parts.
8. Permits saline drip to each needle if desired.

If you have an instrument that meets these requirements, then blood transfusion will be so easy it becomes dangerous without noting the following:

### *Safety Procedures*

1. Typing checked by cross matching the bloods.
2. In case of reaction or chills, stop!
3. Transfuse only conscious patients to avoid chill.
4. Dose under 350 cc. caused no type reaction deaths.<sup>20</sup>
5. Donors on four hour fasts to avoid allergy.
6. Keep ready epinephrin hypodermic to treat reactions.<sup>21</sup>
7. Keep hypodermic of calcium gluconate ready for depleted calcium patients.
8. Intravenous salt or Ringer's solution set up for shock.
9. Immerse new rubber tubing thirty minutes in normal Na OH solution before washing.<sup>22</sup>

### DISCUSSION

Dr. John J. Pflock, Chicago: Dr. Otis has covered the instrumentation and methods very completely, so there is hardly anything to say about the instruments to be used. I think the simpler the instrument we use the better it is. It requires a skilled hand to do a blood transfusion and oftentimes we delegate this operation to inexperienced hands. It is essential that the one doing

a blood transfusion should be skilled and carefully trained. Very often internes and even technicians, possessing neither skill nor experience, are allowed to do blood transfusions.

The Scannel set with Unger type needles has given me the best service, not expensive, almost foolproof, and simple to operate. I find the reaction following transfusion with unmodified whole blood much less than that of the citrated blood. The use of whole blood is most satisfactory because none of the blood is destroyed by citration. Checking up on the typing is very important and should not be done hours or days before the transfusion, but almost immediately before transfusion is contemplated. The donors also should be carefully checked up to see that we do not get diseased blood. We prefer the middle aged, healthy, Wassermann negative male as a donor.

The advantages of using whole blood are that first of all we get the blood as is, blood without any foreign bodies in it. The operation is done quickly and very safely. There is no contamination of the blood in this method and fewer reactions result from whole blood than from citrated blood. We get less chilling in whole blood than in citrated blood, and the blood platelets are not disturbed or destroyed.

The indications for blood transfusions were discussed. I believe any patient who has a blood count less than three million and a hemoglobin less than 45 is entitled to a blood transfusion, no matter what the other indications are. One often hesitates whether or not a patient should have a blood transfusion. My rule is to do as with a sore throat that suggests diphtheria. If I am in doubt whether or not to give the patient anti-toxin, I give it. The same with a blood transfusion, when in doubt, transfuse.

Dr. Frank J. Otis, Moline (closing): I agree with Dr. Pflock entirely. It occurred to me that simplicity of action might require one or two more things. As I tell my nurses, be ready so as to move right off on anything that is necessary. By pressing on a valve, as you push the lever to fill the syringe, you admit the citrate to the syringe; continue moving the lever the blood starts to the donor, and by stopping the lever in a middle position it establishes a drip to each one. We do not have as many assistants and internes, in our work in the country, and if I am working with this apparatus and there comes an emergency in the delivery room, I can stop the syringe, go down to the delivery room, return in five to ten minutes and proceed with the transfusion as though nothing had happened.

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### SURGICAL RELIEF OF PAINFUL DEGLUTITION IN LARYNGEAL TUBERCULOSIS

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The early diagnosis and treatment of tuberculosis of the larynx must assume a prominent role in any anti-tuberculosis program. The delay in early diagnosis results in the loss of much valuable time before the proper treatment can be instituted, thus lowering the patient's much needed strength, increases the dangers of complications, offers a poor general prognosis, and lessens the chances for the patient's final recovery.

Considerable data have been presented on the various measures for the prevention of laryngeal complications, and there have been many contributions in the literature on prophylaxis in the early management of laryngeal tuberculosis, but comparatively few observers have made mention of surgical treatment of the sensory nerve of the

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larynx to afford early relief from pain on swallowing in any stage of this much discussed and dreaded complication.

Only since Hoffman<sup>1</sup> introduced the blocking of the superior laryngeal nerve by the injection of a strong alcohol solution, has it become possible to relieve the pain in tuberculosis of the larynx for any appreciable length of time. Unfortunately the success of the injection varies, as the duration of the anesthesia and the relief of pain fluctuates from a few hours to months or more. A further disadvantage of this method is the fact that after the first injection all subsequent injections are less likely to be successful, because of the formation of connective tissue. As recorded in three of our cases and again called attention to by Nordland<sup>2</sup> there is the possibility of paralysis of the tongue, due to the effect of the alcohol extending into the hypoglossal nerve so closely related. Shukoff<sup>3</sup> states that this anatomic condition is found particularly in short necked individuals. Shugt<sup>4</sup> records a number of cases treated for dysphagia by the injection of alcohol in which a mild edema on the diseased side following the injection was recorded. Boncour<sup>5</sup> is the only observer who records a recession of the inflammatory condition after the blocking of the nerve by the injection of alcohol.

It may be well at this point to describe briefly the technique of the foregoing procedure. When the superior laryngeal nerve is injected, the usual thorough asepsis should be followed. The fluid for injection is 2 drachms of essentially an 85 to 90 per cent. alcohol to which 1-3 drops of pure phenol has been added. A glass hypodermic syringe with a 1½-inch twenty-four gauge needle is used. The patient may lie on his or her back, or may sit upright. The superior cornu of the thyroid cartilage and the greater cornu of the hyoid bone are located by palpation with the index finger and thumb. The needle point is plunged through the skin at an angle of 45 degrees into the thyrohyoid space for a distance of about 1 cm. The point of the needle is rotated until the patient complains of a sharp pain in the ear on the same side. This indicates that the internal branch of the superior laryngeal nerve has been touched. About one or two c.c. in quantity is injected. If the patient coughs, it indicates that the needle point has penetrated into the larynx. This causes no harm, but the

needle point should be withdrawn a very short distance and the injection continued.

Having presented the technique and the disadvantages of the nerve injections, we are pleased to call attention to a safe surgical method of relieving the patient quite early and permanently from pain on deglutition, by resecting the sensory nerve to the larynx, the superior laryngeal; this makes the patient's waking and resting hours bearable, prevents interference with the patient's nutrition, comfort and rest, that are so necessary toward maintaining vital forces of the body.

It should be clearly understood that surgical procedures are not intended to replace non-surgical methods entirely, but are to be considered as adjuncts to those methods. The failure heretofore to make full use of all available therapeutic measures has frequently been due to the prevailing indifference to surgical measures, to too technical discussions, or to the lack of general information as to the ever increasing indications for surgical intervention in the management of laryngeal tuberculosis.

Here we wish to record our experience and to call attention to the value of sectioning the superior laryngeal nerve in cases of tuberculosis of the larynx. This method was first resorted to by Avellis in 1909 for relief of dysphagia in laryngeal tuberculosis. This operation has no contraindications, is exceedingly simple to perform, causes little or no shock, and is absolutely safe.

Before the operative technique is discussed, it is well worth remembering that the superior laryngeal nerve arises from the middle of the ganglion of the trunk of the vagus and in its course receives a branch from the superior cervical ganglion of the sympathetic. It descends laterally to the pharynx behind the internal carotid artery where it divides into the two branches, the external and internal laryngeal nerves. The external laryngeal branch runs beneath the sternothyroid muscle to supply the cricothyroid muscle; the internal branch passes down to the opening in the thyrohyoid membrane through which it passes with the superior laryngeal artery and is distributed to the mucous membrane of the larynx. The branches to the mucous membrane are distributed to the anterior portion of the epiglottis, the base of the tongue, and the epiglottidean folds; while others pass backward and supply the membrane which

lines the cavity of the larynx as low down as the vocal cords.

The operative technique for the section of the superior laryngeal nerve is as follows: the skin is prepared in the usual manner and infiltrated with several c.c. of a one per cent. novocain solution at the site of the intended incision. An incision, two or three inches long, is made through the skin and cervical fascia, extending from the middle of the thyroid cartilage, running parallel to the greater cornu of the hyoid bone to inner border of the sternocleidomastoid muscle. The omohyoid muscle is pulled forward toward the mid-line while the sternocleidomastoid muscle is retracted backward where the large vessels of the neck are carefully avoided. The lateral end of the hyoid cornu is now palpated and by blunt dissection the superior thyroid artery is traced. Superior and anterior to the loop of the superior thyroid artery the superior laryngeal nerve can be seen lying in the thyrohyoid membrane where the internal branch is picked up and sectioned between two forceps.

The cases operated upon in our series were all far advanced cases of pulmonary tuberculosis complicated by tuberculous laryngitis.

In all, seven cases were operated upon and nine sections performed, as in two of our cases bilateral sections were made as recommended by Wachman.<sup>6</sup> Every case responded immediately with relief from pain on swallowing; in a short time there was a decided general improvement with increased strength and resistance brought about by the increased rest and the ability to enjoy more nourishment. Following the operation mild motor disturbances were complained of for several days in two cases and then promptly subsided. In those in our series in which we had to contend with extensive ulceration of the larynx we did not notice any changes in the larynx following resection of the superior laryngeal nerve, but in four non-ulcerative cases of our series we did note a lessening of the infiltration. In two of our cases there was a persisting complaint of pain on swallowing in spite of a successful severance of the nerve, due in our opinion, to the extension of ulceration, perichondritis and chondritis, and not related to the innervation of the superior laryngeal nerve.

Numerous authors assert that resection of the superior laryngeal nerve has a healing influence on the tuberculous process of the larynx. Mayer<sup>7</sup>

observed the disappearance of the acute inflammatory symptoms which were complicating the tuberculosis of the larynx. He states that the inflammatory conditions are produced by the accumulation and stagnation of mucus and pus over the larynx and the pyriform sinuses. This material is either coughed up or swallowed because of the pain on swallowing and irritation and inflammation ensue. Teller<sup>8</sup> records a definite recession of the infiltration in a series following sectioning of the superior laryngeal nerve. Muskat<sup>9</sup> in his series of cases observed a velvety, dusky red hyperemia following resection with subsidence of the infective process. Jackson and Coates<sup>10</sup> state that a transverse section of this nerve is followed by a loss of sensitivity in the laryngeal mucous membrane, a relaxation of the thyrocricoid muscle with a consequent lowering of the pitch and a diminution in the clearness of the voice. Kolina<sup>11</sup> states that the resection of the superior laryngeal nerve has a direct healing influence on the inflammatory condition and consequently on the tuberculous process of the larynx. As a result of our own observations, as well as those reported by other workers, we are firmly convinced that resection of the superior laryngeal nerve for dysphagia in tuberculosis of the larynx is our choice over any of the other recorded available methods more commonly used today, because of the simplicity of the operation and the certainty of permanent relief that it affords.

#### CONCLUSIONS

1. There are no contraindications to sectioning the superior laryngeal nerve on one or both sides in tuberculosis of the larynx where there is pain in swallowing and not relieved by simple conservative measures.

2. In our series we did not observe any unusual or lasting complications.

3. The operative technique is simple, rapid and is absolutely safe and we plead that this operation be performed early so that the patient can be kept from exhaustion because of pain that interferes with proper nutrition.

4. It definitely affords the patient permanent relief, helping to restore his resistance and much needed strength. We firmly believe that resection of the superior laryngeal nerve in cases of laryngeal tuberculosis deserves a place in our surgical armamentarium because of its wide-



spread applicability to warrant general consideration and sympathetic use.

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### DISCUSSION

Dr. Louis Savitt, Chicago: It is very gratifying to hear Dr. Fishman talk of the work performed by himself and Dr. Lederer. I have had the opportunity to observe the material from which some of these conclusions were drawn, and it is my firm opinion that only by classifying the work done can we come to any definite conclusion as to what to do in these forms of tuberculosis.

Every year, many hundreds, perhaps thousands of patients having pulmonary tuberculosis are given the advantages of surgical therapy yet these represent only a small minority of those patients who might be treated with benefit. Records show that in the New England states only about 4.5 per cent. of the patients are given the benefit to be obtained by use of the various surgical methods and this is probably representative of the country at large. In the larger clinics of the country from fifteen to seventeen per cent. of the patients are treated by surgical methods and it is conservatively estimated that thirty per cent. of all patients with tuberculosis could be benefited by the application of some one of the surgical procedures.

A consideration of the procedures used in the treatment of tuberculosis in any of its forms shows that the success of the treatment depends to a large degree on the amount of rest given to the diseased part. With this thought foremost in mind, we turned our attention to the larynx to determine just how much comfort and relief could be given a patient with tuberculosis of the larynx by resorting to surgical measures.

Our problem as we found it was to relieve patients suffering from severe pains on swallowing, with its di-

minished food intake and the rapid failing of the patient.

Since the superior laryngeal nerve, essentially the sensory nerve of the larynx, was our chief offender, we, for a long period injected this nerve with alcohol, but we were met with only varying and temporary results and with occasional mild complications.

Feeling that we needed something that was absolutely safe and would give permanent results, we next began to section the superior laryngeal nerve and with the most gratifying results to all concerned. Inasmuch as our patients soon began to enjoy their nourishment so vitally necessary in their fight, we were made happy again because of the comfort and rest afforded to these ever hopeful individuals who are always looking to us for their continued existence.

Dr. Francis Lederer, Chicago: We divided up our discussion because of the brief time allotted our presentation, so that I think it might be well to summarize some of the material that appears in this paper. After all, the therapy of 1934 is not so materially different from that of the 80's. However, we are struck by the occasional discussions which appear in the literature, because of the hit or miss attitude of the therapy, the same attitude persisting in the minds of most laryngologists on the entire subject of the therapy of laryngeal tuberculosis. Time after time you see in the literature an article advocating a certain agent in the treatment of laryngeal tuberculosis, without having any definite object in mind in selecting a certain type of case for that particular remedy. In other words, you as the reader have the idea that all laryngeal tuberculosis fits in with that therapy; then you are chagrined when you institute such therapy and the results are not forthcoming as the author indicated, with drug therapy or light therapy. Outstanding in this respect are such things as voice rest. We find a recent author referring to voice rest as a dreadful thing. It is certainly dreadful to institute voice rest where there is an ulcerating lesion in the larynx, remote from cords or arytenoids. We would speak in the same manner of quartz light therapy. The minute you mention laryngeal tuberculosis to the average physician, the quartz lamp is rushed into the sick-room. It is the main part of the therapy in most minds. In the detailed paper we did indicate the quartz or other heliotherapy but for only certain selected types of cases. No internist who is acquainted with pulmonary tuberculosis immediately rushes his patient into the sunlight—it might cause the process to break down more rapidly than otherwise. These are only a few of the examples of how we try to rationalize our therapy along sane lines.

I was struck by a question that Chevelier Jackson placed before us in which he asked for a rational therapy, for a patient with laryngeal stenosis, the patient still having an inactive focus in the lung, or maybe a latent process. That latency is a very difficult thing to evaluate. One never knows when a lesion is completely quiescent or completely arrested or cured, so if you institute a certain policy in the presence of an active focus, the individual having a positive sputum for instance, that is not in line with our suggested therapy. These slides, I know, illustrate the manner of our ap-

proach to the problem at hand. Our first consideration is the prophylaxis in all cases of pulmonary tuberculosis, the second, is the objective of the active treatment, relative to nutrition and the preservation of laryngeal function and the third is the evaluation of all the agents such as drugs with their various means of application, heliotherapy, cauterization and the many surgical procedures which are practiced and advocated.

Dr. Joseph Beck, Chicago: I think you will all agree with me that this presentation was complete, as complete as it could possibly be within the time limit, and my comment is this: That men in institutions who are treating tuberculosis in general should have associated with them not only a laryngologist but one who is well equipped to handle this situation. You saw this in the analysis of the work shown here today. Personally I have little to add from my experience. I feel if you are going to make any progress at all it will be by combination of medical and surgical conferees in institutions, and that treatment will only be rationalized in this way. You will find the literature flooded with this and that thing in treatment. This one scarifies the tuberculous process, rubs in dyes, gives a summary of so many cases improved, non-improved—but the basic information is not there as to what they are actually treating. I think this is an exceedingly refreshing summary of the work done. As I recall, in my early days of practice, tuberculosis of the larynx meant the end of the patient. There was nothing to be done.

Another thing is the matter of early interference, not waiting until the patient is starved and then do a gastrostomy; when he is suffering from pain and is exhausted for lack of air and then do a tracheotomy. This does not refer to the submucous type of tuberculosis of the larynx as shown by Mullen. There is no indication for surgical interference in such cases, as the patients seldom have pain of that kind or obstruction to breathing.

Dr. L. Z. Fishman, Chicago: I would like to add a small though important detail to the technic so well described by Drs. Savitt and Soboroff. There is one step in the procedure of this operation in the human which has always made the exposure of the internal branch of the superior laryngeal nerve relatively more simple than otherwise. As we know, this branch courses downwards within the fascia of the thyrohyoid membrane at an angle of about 45 degrees in relation to the anterior border of the sternocleidomastoid muscle. If the blades of a scissors are inserted into and opened in this fascia, somewhat anterior to the lateral thyrohyoid ligament but in a position that is parallel to the course of the nerve as designated by the 45 degree angle, the nerve will usually present itself as a white band, well-defined from its surrounding areolar connective tissue.

Dr. Simon H. Soboroff, Chicago: I wish to thank the gentlemen who were so kind with the discussion. In my nervous haste to finish reading the paper, I believe I neglected to say that the work was done in the Municipal Tuberculosis Sanitarium, and it was largely through the kindness of the chief of this department, Dr. Lederer, that we were able to do the work. Dr. Fishman's

suggestion will be tried out in the next series of cases. It is the little things that must be watched, the little cough, the slight hoarseness, the slight sore throat. We have had that experience at the sanitarium. The patient has a complaint of hoarseness of about a month. Examination of the larynx shows extreme infiltration. When asked if he has been hoarse before the patient says yes, that he went to a doctor and was given some cough medicine. It is important to examine the larynx and notice these things in time.

## RATIONALIZATION IN THERAPY OF LARYNGEAL TUBERCULOSIS — THE EVALUATION OF THE LARYNGEAL FOCUS IN PULMONARY TUBERCULOSIS

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Is laryngology arriving at or is it passing the stage of adolescence? Or is it conceivable that it has become quite mature and sedate as a specialized science of the art of medicine in contrast to its status during the period of 460 B. C., when the larynx was considered as connecting the urinary bladder with the pharynx? Perhaps we are certain today, thanks to Galen's work in the second century, that the heart is not the organ of voice. Considering all things relatively, we are not so certain that laryngology, particularly the subject of laryngeal tuberculosis, is as familiar to many of us as it is entitled to be. This statement regarding the subject under discussion is not made on the basis of fancy, but upon that of the palpable lack of available information which is shown by present-day publications concerning tuberculous disease of the larynx, particularly its therapy.

It has always appeared to us that there has been a laxity in the treatment of this affection, first through the lack of understanding of the disease, and second because of a phlegmatic or pessimistic attitude in regard to this complication. The fatalistic attitude of many physicians of past decades regarding the incurability of laryngeal tuberculosis, is not as prevalent as

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formerly, although there are still those who could be living in that period, preceding 1880, before the advent of rational therapy of the larynx. Associated with this early advance, we recognize the names of Albers (1829) who advocated the performance of tracheotomy for the rest of the larynx; Trousseau and Belloc (1837) who advised steam inhalations, powders, etc.; Horace Green (1838) who practiced the topical application of silver nitrate to the larynx; Moritz Schmidt (1880) who recommended such procedures as tracheotomy and scarification; Krause (1885) who indicated lactic acid as a therapeutic aid; and Heryng (1886) who advised curettage.

Arranged by Francis L. Lederer  
and Louis Z. Fishman

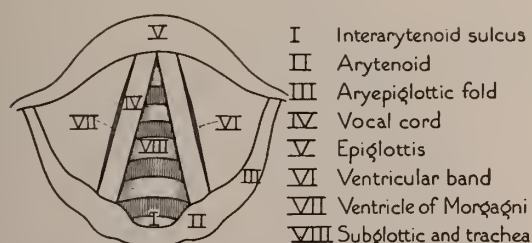


Fig. 1. Stress is placed upon the origin of laryngeal pathology from a pulmonary tuberculosis, attaching equal importance upon concise clinical and histopathological interpretations and localization of the laryngeal lesion. These three factors form the basis of an equilateral triangle for comprehensive diagnosis and the foundation for rational therapy. The ultimate goal is therefore depicted at the apex which is arrived at by means of the basic steps.

Since that time there have been many other therapeutic measures advised, some of which have been continued or improved upon, and many others which have been discarded. The treatment during all of these years has varied from one extreme of passive and hopeless expectancy to the other of energetic surgical interference. Many of the methods which have been recommended are successful in some hands, but have failed in others because of improper technique and the lack of individualization regarding the choice of cases. The ease with which these errors are committed may be demonstrated in a vivid manner by pointing only to the wide variations in certain conceptions regarding this disease. For example, specific involvement of the larynx in pulmonary cases varies in occurrence from 3 to 97 per cent. in the statistics according to their source; in the

average variety of cases, 3 to 25 per cent. would more nearly approach a correct statistical figure. In our own institutional experience we find that 15 per cent. of patients with pulmonary tuberculosis have laryngeal tuberculosis. To treat all cases regardless of lung pathology and type of laryngeal involvement by universally applying one form of therapy is obviously unfair, even in the light of good results. Reports are being published recommending one form of therapy or another as a routine procedure in all cases of laryngeal tuberculosis. This lack of discrimination we look upon as being illogical. We consider it to be of greatest importance, in reporting a type of therapy, that we indicate in no uncertain terms the method according to its separate and individual indications.

Although we intend to lay greater stress upon the local therapy of the larynx in our presentation, it is essential that tuberculosis of the larynx be defined in a general introduction to the subject, as a disease which is always secondary to a pulmonary lesion; so far, no case of unquestionable primary laryngeal tuberculosis appears among our own cases. Also, very little controversy exists as to the relation between the course of the pulmonary and the laryngeal pathology; the one may increase in severity while the other becomes arrested or cured, although the frequency of laryngeal involvement undoubtedly increases in the terminal stages and in the severe types of pulmonary tuberculosis. Nor can we stress sufficiently the fact that tuberculosis of the larynx is not indicative of a terminal stage of pulmonary tuberculosis, but may be the first sign of a hidden pulmonary focus. This fact is demonstrated not uncommonly when we point to the presence of pulmonary tuberculosis upon the basis of our diagnosis of a tuberculous lesion within the larynx, and must subsequently force the internist, before he succeeds in confirming our interpretation, to persist in his search for an earlier or preceding focus.

In the same manner in which we present first the problem of the focus within the lung, so do we consider first at the patient's bedside, before therapy of the laryngeal disease is rationalized, the degree of pulmonary pathology present. It is obvious that a hopeless case of far-advanced pulmonary infection and generalized debility is also hopeless from the specialized point of view.

We may only do those things which will afford the patient as much comfort as possible, because such a patient shows that he has neither the resistance to overcome the bacillary invader, nor the ability to satisfy any other reparative demands from other regions of the body. Surgical procedures are, then, definitely contraindicated for this patient, except as a last resort. These exceptions are vital and occur when a secondary lesion is of such a nature,—even if it is within the larynx,—that it must in itself lead inevitably to death. There are various methods for ascertaining and indicating to the physician the status of the pulmonary and general condition of the patient, such as pyrexia, tubercle bacilli in the sputum, loss or gain in weight, shifts in the blood picture and lastly, blood sedimentation. Briefly, these findings form our basis for indicating or contraindicating certain types of caustic or surgical therapy. The problem is an extensive one and must be interpreted with the cooperation of the internist.

The second group of considerations is our own evaluation of the local disease. We have divided the basis for such an evaluation into two major classes according to: 1. the pathologic character of the laryngeal lesion, which establishes therapy on the basis of both the gross and microscopic pathology and the corresponding indications of the clinical course (progressive; arrested or latent; or cured), and 2. its anatomic location, which establishes therapy on the basis of both the histologic structure and physiologic function. A qualitative diagnosis, embodying such descriptive characteristics as these, permits universal terminology, and, in the final analysis, universal therapy locally; logical sequence in therapy follows. "Quality diagnosis" expresses our desire to impress upon the physician that an understanding is absolutely necessary of the various general forms and manifestations of the disease correlated with definite local effects of laryngeal tuberculosis. To accomplish such comprehensive information from our diagnosis, we must recognize pathologic types, anatomic localizations and clinical forms (Figure 1). Regarding the pathologic character of the lesion, the same basic processes and resulting objective symptoms pertain to the larynx histologically as elsewhere in cases in which mucous membranes, muscles, cartilages, bones, or joints are attacked by the tubercle bacillus. While laryngeal lesions have a basic

histopathologic character, they are subject to greater variations first, because of the specialized anatomy and functional activity of the larynx, and second, because of the presence or absence of secondary infection. Objectively, we recognize in a simple manner early stages of invasion by the appearance of hyperemia, followed by infiltration (productive or non-productive), then ulceration (superficial or deep; active or sluggish) followed by the appearance of granulation tissue (tuberculoma or papilloma); perichon-

Arranged by Francis L. Lederer  
and Louis Eda Fisher

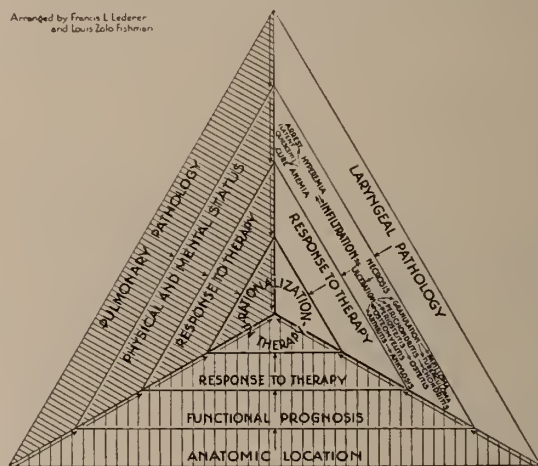


Fig. 2. The order of frequency in which various parts of the larynx are affected in laryngeal tuberculosis. Precise localization of the laryngeal lesion anatomically is emphasized because of consequent dysfunction of local physiological acts and general ill-effects upon the patient. The areas may be involved singly or multiply. Sites of predilection vary according to institutional experiences.

dritis or chondritis and possibly necrosis with abscess formation, periostitis and even osteomyelitis. Such a chronologic course may be termed clinically as "progressive" (Figure 2). Combinations of these various pathologic processes may be coexistent in the larynx of a patient. Furthermore, one type of lesion may be progressive while another may become arrested (latent) or cured. If the cricoarytenoid or cricothyroid articulations become involved, any one of the types of tuberculous arthritis results, which may lead eventually to ankylosis of the joint and fixation of the vocal cord. If any of the cartilages are attacked, the symptom complex of laryngeal perichondritis presents itself. Again, reactions to therapy and disease differ according to whether the cartilage is hyaline or fibroelastic,



and according to whether the type of epithelium is non-ciliated stratified squamous, ciliated pseudostratified or ciliated columnar. Lastly the use of the anatomic term in the diagnosis to designate the location of the laryngeal pathology will at once indicate what the physiologic prognosis may be and what therapeutics are contraindicated to safeguard, if possible, the patency and the phonatory movements of the larynx.

*Rational Therapy Based Upon Pathologico-Clinic and Histologico-Anatomic Characteristics of the Tuberculous Lesion with the Larynx.* Because this form of laryngeal disease occurs more frequently than any other specific disease of the larynx, we have always emphasized laryngeal prophylaxis in the routine management of the tuberculous.

### PROPHYLAXIS IN THE TUBERCULOUS

1. A high standard of the patient's physical and mental status must be maintained.
2. The larynx must be examined frequently in all cases of tuberculosis as much depends upon early detection of local pathologic processes. Attention must be directed to the minor laryngeal complaints before they attain major proportions.
3. Local areas, when non-tuberculous, must be treated to prevent the resistance of the parts from becoming lowered. Chronic laryngitis must be treated as well as abrasions and superficial ulcerations.
4. Voice hygiene or absolute vocal rest is important. Proper use of the voice is to be emphasized, especially for those who are subjected to coughing paroxysms which alone punish sufficiently the vital components of the larynx.
5. The so-called "common cold" particularly should be watched and properly treated.

Evaluations of the disease of the larynx on the basis of the foregoing facts enable us to speak about lesions, wherever they may occur, in vivid terms, so that in a great measure, we may subscribe to rational diagnosis and treatment. We briefly present our qualitative concepts of the main pathologic groups and active therapeutic principles involved in each of these:

### OBJECTIVE OF THE ACTIVE TREATMENT

1. To relieve symptoms which not only interfere with comfort, but defeat one of the main objectives in the general treatment, viz., nutrition.
2. To obtain complete arrest of the tuberculous infection, pulmonary and laryngeal.
3. To cure it in the larynx, preserving, if possible, laryngeal function.

*Vascular Changes: Hyperemia*, generally, is not a serious laryngeal complication of pulmonary tuberculosis, and calls for mild forms of

therapy such as sunlight or mercury vapor irradiations. These must be applied directly to the inner surfaces of the larynx if therapeutic results are to be expected. In the very early stages of laryngeal tuberculosis we always place the organ at complete rest and feel that even heliotherapy may activate the local process. Roentgen ray therapy has had enthusiastic claims made for it and excellent results have been reported following its use in incipient cases. It may be stated here as applying to all pathologic types of lesions that immobilization of the larynx obtained by complete silence,—which does not mean that whispering may take the place of complete silence,—is indicated only when the vocal cords or the cricoarytenoid articulations are involved. Since the most common site for the tuberculous lesion is the interarytenoid sulcus above the level of the vocal cords (supraglottic), voice rest is of value in the greater number of early cases of tuberculous laryngitis. Incidentally, hoarseness or aphonia is also, on the same basis, an uncommon or late symptom. One or the other may be present at any time during the course of pulmonary or laryngeal tuberculosis for other reasons, such as a non-specific laryngitis or phonasthenia. Hyperemia of the interarytenoid sulcus may lead to a diagnosis of the pathogenesis of spasmodic coughs or odynophagia in these patients; in such an event, mild astringents may be prescribed either in the form of topical applications or steam inhalations. Indiscriminate swabbing is not advised because it is uncomfortable, irritating and oftentimes injurious.

*Anemia*, when local, indicates an infiltration which must be differentiated from pachydermic states. When generalized in the larynx and pharynx, it will be found that it is merely another mucous membrane symptom of secondary anemia or debilitation and by no means does it indicate local tuberculosis. In the latter instance, therapeutic measures are obviously to be directed against the pulmonary disease and general debility. The pallor which is considered to be associated with laryngeal tuberculosis is one that is combined with an infiltrative edema producing a picture characteristically ashen grey in appearance, and entirely different from that seen in states of secondary anemia.

*Infiltration* is pathognomonic when it involves the interarytenoid sulcus, usually on one side more than the other, and when non-specific

pachydermia laryngis can be eliminated from the clinical diagnosis. The next sites of predilection for infiltrative processes are the arytenoids and aryepiglottic folds. Next in frequency of occurrence, are the true cords, false cords, the epiglottis and, lastly, the sinus Morgagni, subglottic area, and trachea. In infiltrative and mildly ulcerative cases, definite influence and even an arrest of the process may be brought about by heliotherapy. In advanced types the beneficial effects of such agents are questionable. The galvanocautery offers the best type of therapeutic attack against such infiltrations, because, by means of igni puncture or even mass cauterization, these lesions may be destroyed. The consequent fibroblastic reaction is particularly excellent and serves to encapsulate further in dense scars, active foci which may have been missed and which are adjacent to cauterized areas. On the basis of the histologic character and established reactions to trauma of the cricoid, arytenoid and thyroid cartilages, galvanocautery is never applied to these cartilages. The epiglottis, on the contrary, because of its fibroelastic structure and firmly adherent perichondrium, may be cauterized whenever necessary. Care must always be exercised to avoid the superior laryngeal arteries in any traumatic procedure on the epiglottis. Again, if an infiltrative process involves the anterior commissure, the anatomic location contraindicates cauterization or any form of surgical procedure because of the danger of scar formation which may result in glottic stenosis. Roentgen therapy, tuberculin injections or other less established methods may be attempted as secondary therapeutic choices in these cases. Silence is a good form of therapy when the true cords, membranous or cartilaginous, are infiltrated.

*Ulcerations*, are differentiated according to their appearance in diffuse or in asymmetrical groups. The diffuse process occurs in the larynx as part of the lesions of miliary tuberculosis. Such ulcers develop too early following the formation of miliary tubercles for these tubercles to be noted clinically. The asymmetrical groups are essentially limited as local processes. Therapy for acute miliary tuberculosis of the larynx is as hopeless as that which may apply to the generalized miliary characteristics of this fulminating and disseminating form of pulmonary infection. Such is not true of the more localized ulcerations. If we continue according to the principles of

rationalization in therapy, it is evident that chronic, sluggish ulcers may respond to topical applications of neutral quinine hydrochloride, formol, lactic acid, paramonochlorophenol and trichloroacetic acid. The galvanocautery is more effective for combating larger ulcerations, just as it is for destroying infiltrative lesions *per se*. The membranous portion of the true cords may be cauterized massively, yet the healing process will almost fill the deficiency with scar tissue so that even phonation may be restored eventually. When ulcerations appear, they induce pain; when they involve cartilages, the pain accompanying the perichondritic or chondritic process is excruciating. In addition to immobilizing the larynx by silence, it is often necessary to inject the sensory (internal) branches of the superior laryngeal nerves. This is performed first on the side which appears to be causing the greatest amount of pain; if the relief obtained is not sufficient, the nerve of the other side is injected about five days later. A few instances of positive relief will be impressive and will illustrate the importance of so simple a procedure. In the event that these measures do not relieve the pain entirely, section of the superior laryngeal nerves themselves or their sensory branches is resorted to; anomalous branches may defeat the purpose of the operation upon the sensory branches, and glossopharyngeal neuritis may defeat the procedure upon the superior laryngeal nerve. Finally, gastrostomy is a rational procedure when it is desired to remove all sources of irritation to the ulcerated parts, even that trauma which is produced by the passage of liquids and the attending movements of the larynx during deglutition. There remains for our consideration, in the discussion of the treatment of perichondritis, lesions of this character involving the epiglottis. In this instance, if the upper third is diseased, partial epiglottidectomy offers an effective and thorough method for eradicating the local disease, the dysphagia, the respiratory interference, or the aspiration of food and drink. Small ulcers of the epiglottis may be treated in the same manner as suggested for similar lesions in other parts of the larynx.

*Tuberculoma* is a specific type of infiltrative reaction of the tissues to tuberculous disease of the larynx consisting mainly of connective tissue, resembling grossly a fibroma or papilloma, or it may be a typical tuberculous granuloma. Tumor



formations of tuberculomas occur most frequently as solitary lesions, although they may present bizarre forms of extensive excrescences. This type of lesion is most commonly found upon the posterior wall, in the interarytenoid areas, the ventricle of Morgagni and the anterior commissure. In rarer instances, they are found on the vocal cords, epiglottis and ventricular bands. In the ventricle of Morgagni, tuberculomas may simulate a state of ventricular prolapse. Tuberculomas may be removed surgically, followed by galvanocauterization of their bases.

*Granulations* are usually found overlying ulcerations, but may assume a papillomatous appearance, masking the original pathology. The treatment is essentially like that employed for ulcerations, excepting that it should be more vigorous. The diseased areas may be removed surgically when the risk is good, and when not good, performed as a last resort.

*Reparative processes*, as well as progressive ones, require rational therapy. By this statement it is meant that the ability of the laryngologist to abstain from interference in certain latent or arrested processes is as vital therapeutically as his foresight in indicating and skill in performing laryngeal operations. The clinical differences between latent and cured lesions are of no value, since the terms are employed merely on a presumptive basis of inactivity. A latent or arrested lesion is considered as cured after it has remained stationary for a period of years. The fact that tuberculous foci may be activated particularly by trauma, even after a period of latency extending over 10, 15, 20 or more years, establishes the danger of attempting plastic procedures within the larynx in the presence of arrested tuberculous processes. There is, as may be deduced, a great difficulty in the distinction between permanent cure and latent, quiescent or arrested states.

#### OUTLINE OF ACTIVE TREATMENT

##### 1. *Drugs.*

1. Intralaryngeal Instillations or Sprays.  
Chaulmoogra oil, Mentholated oils,  
Orthoform emulsion, Cocaine, Butyn.
2. Topical Applications.  
Formalin, Lactic acid.
3. Insufflation of Powder.  
Orthoform, Thioform, Methylviolet,  
Iodoform, Anesthesine, Zinc stearate.
4. Inhalation of Vapors.  
Benzoin, Menthol, Creosote, Guaiacol.

##### 5. Lozenges.

Orthoform, Anesthesine.

##### 2. *Heliotherapy and Radiotherapy.*

1. Finsen light (carbon arc).
2. Direct reflected sunlight.
3. Ultraviolet.
4. Roentgen ray.
5. Radium.

##### 3. *Cautery.*

1. Thermo or Electrocautery.  
Galvanocautery, Surgical diathermia.
2. Chemical Cautery.  
Trichloroacetic acid, Neutral quinine hydrochloride, Lactic acid, Formol, Paramonochlorophenol, Formaldehyde, and Silver nitrate.

##### 4. *Surgical.*

1. Endolaryngeal and extralaryngeal procedures.  
Curettag and Scarification, Tracheotomy, Epiglottidectomy, Superior laryngeal nerve-blocking and resection, Thyrotomy, Laryngotomy, Hemilaryngectomy, Laryngectomy.
2. General Surgical Procedures.  
Collapse therapy, Resection of phrenic nerve, Extrapleural thorocoplasty, Gastrostomy, etc.

One cannot conclude a discussion of laryngeal tuberculosis without a word about the manner in which such cases are best controlled, i. e., office or home management, vs. hospital or sanatoria isolation. The careful and frequent check on all pulmonary cases requires routine laryngoscopic observation which, in itself, does not necessarily constitute an institutional problem. Despite the present tendency to the contrary, it can be justly stated that therapy can best be carried out in institutions under close supervision and specialistic observation. Laryngeal tuberculosis indicates a highly infectious condition which calls for isolation and the strictest and most diligent discipline of the patient. Such a regime is best accomplished in institutions where conditions are inherently adaptable to prophylactic and active therapeutics. It is relatively easier for an institutionalized patient to acquire the desire of cooperating with the physician and to learn stoicism than it is for a patient who remains at home where all of his own problems and, in addition, those of his family are constantly brought to his attention. There is no need to discuss the merits of maintaining a healthy mental as well as a healthy physical state to assist the convalescence of tuberculous patients particularly.

#### SUMMARY

1. Stress is placed first on the origin of this specific form of laryngeal pathology from a pri-

mary pulmonary tuberculosis, it being recalled, however, that laryngeal complications, when they occur in these tuberculous patients, are not necessarily specific in character; equal importance is attached to concise clinical and histopathological interpretations of the pulmonary and laryngeal states; finally, precise localization of the laryngeal lesion anatomically is emphasized with reference to consequent dysfunction of local physiological acts and subsequent local and general ill-effects on the patient.

2. These three groups of factors are discussed as prerequisites to the formation of a basic equilateral triangle for comprehensive diagnosis; it follows that only upon such a complete and logical foundation can the multitudinous types of therapy be pyramided toward success in an application to the almost equally great number of tuberculous manifestations within the laryngeal structure. The conclusion becomes obvious, "that any departure from the above principles may be stigmatized as empirical if not entirely unsound."

3. Tuberculosis of the larynx is similar in its pathology to tuberculosis in other organs, being modified however, by the anatomy of the larynx and its functional activities. The pathology of the lesion indicates the clinical course of the disease and the type of therapy. The anatomic location of the lesion indicates the physiologic prognosis of the organ and the type of therapy which will safeguard, if possible, the functions of the larynx; it also permits a knowledge of the response to various types of therapy on the basis of the histologic structure of the part involved.

4. Immobilization of the larynx entails complete silence and prevention of deglutition. Complete silence alone is indicated only when the vocal cords or when the cricoarytenoid articulations are involved; extensive perichondritic lesions call for more radical measures, such as tracheotomy and gastrostomy, to insure greater degrees of immobilization of the larynx than is obtained by silence.

5. The relative merits of the various drugs are not easily determined. Much of the success of any of the therapeutic measures is dependent upon the interest and diligence of the physician in charge and upon the status of the pulmonary condition. The matter of a careful technique, and the choice of the proper indication stands paramount.

6. The epiglottis has no function in phonation or deglutition, nor is its removal mutilating to the larynx; partial epiglottidectomy is vital when extensive infiltration or ulceration of the epiglottis results in aspiration of food, excruciating pain, or dysphagia.

7. Injection and section of sensory nerves are palliative and not curative procedures *per se*, except when such procedures permit rest and intake of nourishment.

8. Laryngeal tuberculosis may be arrested or cured without extension, no impairment of the physiological functions of the larynx need result, though defects may remain.

9. Institutionalization, for isolation, discipline and control of the patient is recommended.

10. The maxim is offered, "It is better to have a live and well patient without an intact larynx and voice than to watch his exitus as the result of pain or starvation; it is also to be desired that a cured patient retain as much of his larynx and voice as is compatible with rational therapy."

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## NUTRITION WORK IN THE SPRINGFIELD, ILLINOIS, SCHOOLS

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SPRINGFIELD, ILL.

During the past two years it has been deemed advisable to give considerable attention to the nutrition of children attending school. This was done to avoid the penalty of lowered resistance, sickness and other consequences resulting from undernourishment, following in the wake of inadequate food supplies experienced by many families on account of the economic depression.

*Method of Procedure.* At the beginning of each semester all the children in the elementary schools are measured, weighed and listed on Classroom Weight Record Sheets as shown in chart 1. In the public schools this is done by the Department of Physical Education. In the parochial schools the school nurses do this work.

The percentage variation from the average normal weight for age and height, as given in the



CHART 1. INSTRUCTIONS FOR WEIGHING AND MEASURING

Room..... Grade..... School..... Teacher's Name..... Year.....

Names	Sept.	Ht.	Wt.	Norm.	+	%	Feb.	Ht.	Wt.	Norm.	+	%
	Age			Wt.	-	U. Wt.	Age			Wt.	-	U. Wt.

(1) Have teachers fill in blanks below and give names and ages of pupils in Years and Months, making separate sheets for Boys and Girls. (2) These sheets are to be sent with pupils when coming to be weighed.

WEIGHING: (1) Have children remove shoes, coats, and sweaters. (2) Have child stand with toes on front edge of

scales platform, hands down to side and head and shoulders up. (3) If possible, have two people help, one for measuring and the other for weighing. (4) The plan for weighing in each school is to be worked out with the principal and the person or persons who are to be responsible for this work in the respective schools.

Baldwin-Wood Tables, is figured and entered on the Classroom Weight Records.

An Individual Weight Record Card as shown in chart 2, is started for each child found ten

the results in the various schools and the different weighings comparative, it is necessary that a uniform method of weighing, measuring, computing and classifying the results be employed.

Turner,<sup>1</sup> in discussing the Precision and Reliability of Underweight Measurement, showed the results of using various methods in computing the per cent. of children ten per cent. underweight in a group of 475 children. With variations in the method of procedure and computation, the percentage of underweight children ranged from 4.8 to 25.3 per cent. with the five different methods employed.

In order to prevent such variations in the results, definite written instructions were issued and followed in determining and computing the weight variations of the pupils observed.

The following are some of the pertinent points covered by these instructions:

All scales are to be inspected and sealed by the City Inspector of Weights and Measures.

Children are to be weighed with their outdoor clothes, pocket contents and shoes removed. Results are recorded according to the nearest numeral.

Age used for computation shall be that of the nearest birthday.

Monthly weighings are made on or before the 10th day of each month.

Compare last and first weights of period.

*Results of Initial Weighing.* The results of the weighing of all the children in the elementary schools, exclusive of those in special classes, immediately after the reconvening of school in September, are considered as the initial weighing.

The results of these weighings for the years 1932-33 are shown in Table 1.

TABLE 1

Number and Per Cent. of Children Ten Per Cent. or More Underweight in the Springfield, Illinois, Elementary Schools at First Weighings—1932-1933

1932			1933		
Ten Per Cent. or More Underweight			Ten Per Cent. or More Underweight		
Number Weighed	No.	%	Number Weighed	No.	%
10,719	1,427	13	11,170	2,399	21

1. Turner, Clair Elsmere. Amer. J. of P. H., Sept., 1929, pages 969-77.

Springfield, Ill., Schools—Boys' Height and Weight Record

Name..... Date of Birth..... 19.....

Age—Yrs..... Mos..... Sept. Height..... Feb. Height.....

Expected Weight for A. & H..... Percent Underweight.....

Expected Gain in Weight during Year..... Pounds.....

193..... Weights 193.....										
Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	Total Gain

EXPECTED YEARLY GAIN FOR BOYS\*

Age—Years	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Av. Ht. (Short)	43	45	47	49	51	53	54	56	58	60	62	64	65	65	65
Ht. (Med.)	44	46	48	50	52	54	56	58	60	62	64	66	68	69	69
Ht. (Tall)	46	48	50	52	54	56	58	60	62	64	66	68	70	71	71
Av. Wt. (Short)	3	4	5	5	5	5	6	8	9	11	14	13	7	3	3
Wt. (Med.)	4	5	6	6	6	6	7	9	11	13	15	16	17	18	18
Wt. (Tall)	5	7	8	8	8	8	9	11	13	15	17	18	19	20	20

\* Draw circles around the Age, Average Height and Expected Gain.

Form H 5 50-1

EXPECTED YEARLY GAIN FOR GIRLS\*

Age—Years	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Av. Ht. (Short)	43	45	47	49	50	52	54	56	58	60	62	64	65	65	65
Ht. (Med.)	44	46	48	50	52	54	56	58	60	62	64	66	68	69	69
Ht. (Tall)	46	48	50	52	54	56	58	60	62	64	66	68	70	71	71
Av. Wt. (Short)	4	4	4	4	4	4	5	6	7	8	9	10	11	12	12
Wt. (Med.)	5	5	5	5	5	5	6	7	8	9	10	11	12	13	13
Wt. (Tall)	6	6	6	6	6	6	7	8	9	10	11	12	13	14	14

\* Draw circles around the Age, Average Height and Expected Gain.

Form H 5 50-1

Chart 2. (Above) Reduced from boy's 6x4 blue card. (Below) Part of girl's pink card. Reverse side of cards is a form for recording data for several terms of school.

per cent. or more underweight. The expected gain in weight for the ensuing year is determined for each such child and entered on this card.

All the children found ten per cent. or more underweight are re-weighed each month, and the results entered on the individual records. Whenever a child shows no gain at such weighings, an inquiry is made in regard to attacks of acute illness and where these have occurred the entries are "circled."

Similar individual records are kept on children in contact with a case of tuberculosis and on all pupils in special classes, such as the Sunshine School, Crippled Children's School and Sight Saving Class.

An Individual Monthly Weight Record is also kept for all children who were less than ten per cent. underweight when first weighed and who made no gain during the following semester.

*Accuracy and Uniformity.* In order to make

These weighings showed 21 per cent. of the pupils, 10 per cent. or more underweight in the fall of 1933, as compared with 13 per cent. in the preceding fall.

This represents an increase of 32 per cent. in 1933 over 1932. This percentage increase ran fairly uniform through the public and parochial school systems.

In September, 1932, the proportion of underweight children in the various schools ranged from 6 to 19 per cent.

As a general rule, the highest percentages of underweight children were found in the schools of the poorer districts of the city. The highest per cent. was found in the Central district, where many residences have been converted into rooming houses and small apartments, and where many mothers are employed.

In September, 1933, the results in the individual schools varied from 8 to 42 per cent. and the highest percentages were found in the districts where the largest proportion of families were on relief.

*Weighings at End of First and Second Semesters, School Years 1932-33.* During the first semester of 1932, 1,379 of the children found 10 per cent. or more underweight in September were kept under observation and weighed monthly. At the end of the semester 27 per cent. showed no gains in weight. Physical examinations were made of nearly all the children who failed to gain in weight. In approximately 80 per cent. nothing was found which might be considered as causing or contributing to the malnutrition. In the other 20 per cent. the most frequent findings were adenoids, enlarged tonsils, and inflamed cervical lymphatic nodes.

At the end of the second semester of the school year 1932-33, 25 per cent. of the 1,502 kept under observation showed no gain in weight. These represented 3.4 per cent. of the children enrolled in the elementary schools.

At the beginning of this semester the children who were less than 10 per cent. underweight in September, and made no gain during the first semester, were taken on for observation and monthly weighing. These, combined with the children found 10 per cent. or more underweight, represented 13.2 per cent. of the entire enrollment.

It is evident now that the failure of approxi-

mately 25 per cent. of the underweight children to gain in weight during the school year 1932-33 was a forerunner of what occurred in the following summer, for when the children were reweighed in the fall of 1933, it was found, as referred to above, that the percentage of children 10 per cent. or more underweight had more than doubled.

*Milk Fund Established and Milk Feeding Stressed.* When the great increase in the percentage of underweight children in the fall of 1933 was first definitely noted, it was decided that as an emergency measure every child found suffering from malnutrition should be supplied with milk in school.

A physical inspection of 1,493 underweight children showed distinct evidences of malnutrition in 63 per cent. Markedly enlarged tonsils or adenoids were found in 18 per cent. of all the children examined.

Following this examination and classification, a letter was sent to the parents of all the children in the public elementary schools, found undernourished, advising that the child be provided with two half pints of milk in school. Parents were also asked to indicate if they could supply this milk at their own expense, in case they desired their child to be provided with milk, as suggested.

In the parochial schools the importance of providing the undernourished children with milk was stressed in personal contacts with the teachers, parents or older children of the family.

The tabulation of the replies received from the parents showed that in slightly over a third of the cases the parents indicated that they were financially unable to supply the milk in school as recommended.

The Council of Social Agencies was appealed to for a Milk Fund to supply milk to the undernourished children in these needy families. After a careful review of the evidence, the Council agreed to raise such a fund, and in anticipation of the Drive for a Community Fund, which was planned for the near future, agreed to start forthwith to provide the milk in the public schools for these children. The parochial schools arranged to handle the problem in the various parishes where it was found that aid was needed.

Naturally, the drives to raise the general and local milk funds resulted in a lot of publicity in



regard to the necessity of milk for undernourished children. This, together with the home visiting, done by the social agencies to check on the use of milk in the home by families on relief, in which undernourished children were found, helped to arouse the interest of the parents in the proper feeding of their children.

Although all these children were at first supplied with milk in school—either one or two pints—depending on their degree of malnutrition, the aim was to supply the necessary amount of milk in the home. When this was accomplished in a given case, the supplying of milk in school, for children in this family, was discontinued.

All the children for whom free milk was recommended in the public schools were thus supplied with milk or oatmeal in the schools early in the Fall of 1933. Children with marked evidences of malnutrition were given a half pint in the morning and afternoon. The others received a half pint in the middle of the forenoon. All the families from whence these undernourished children came were investigated by the social agencies or nurses and when reported as receiving an adequate supply of milk and other essential foods in the home, were dropped from the school lists. In May, about 72 per cent. had been dropped.

Approximately 50 per cent. of the children in families not on relief, or not requesting financial aid for supplying milk to their undernourished children in school, were provided with milk in the schools at the parents' expense.

Thus approximately 75 per cent. of all the under-nourished children in the public schools were provided with milk in the schools, early in the Fall of 1933, soon after their condition had been definitely determined.

The principal accomplishment of this drive was that all the undernourished children in families on relief were supplied with milk in school at once, and with an adequate supply in the home, as soon as this could be accomplished. In the families on cash relief, this meant educating the parents in regard to the necessity of milk and other essential foods for the growing children.

The monthly re-weighings of all the children ten per cent. or more underweight afforded an opportunity for the nurse to contact these children individually and interest them in their diets

and other measures necessary to improve their nutrition.

All of this had the salutary effect of interesting the parents in the nutrition of their children.

*Results of Nutrition Work in the First Four Months of the School Year 1933-34.* The results of the re-weighing in January, 1934, of all the children in the elementary schools who were ten per cent. or more underweight when weighed during the preceding September, are shown in Table 2.

TABLE 2

Results of Reweighing Underweight Children—All Elementary Schools—January, 1934

Comparisons with September, 1933	
Number Under Observation.....	2,230
Made Expected Gain (One-third of Annual).....	1,765
Made Some Gain .....	305
Remained Stationary .....	79
Lost in Weight.....	25
Absent or Transferred.....	56
Per Cent Made Expected Gain (One-third of Annual)...	79
Per Cent Made No Gain.....	5

An analysis of the results in the various schools shows that the greatest percentages of expected gains occurred, with a few exceptions, in the poorer residential neighborhoods. In these schools the percentages of children making their expected gains averaged 83 per cent. as compared with 70 per cent. in the better residential neighborhoods.

In the Catholic parochial schools 81 per cent. of the underweight children made their expected gains, as compared with 79 per cent. in the public and 77 per cent. in the Lutheran schools. The Catholic schools did not participate in the milk fund referred to before, but handled the problem of supplying milk and other essential foods to the needy undernourished children in their respective parishes.

In two public schools, 125 underweight children were given oatmeal and milk at the time of the morning recess. The children in these schools showed the same percentage of gain as the other schools in the poorer residential neighborhoods, namely, 83 per cent., yet these children were much more undernourished.

The outstanding fact disclosed by the re-weighing of the underweight children in January, 1934, was that only 5 per cent. failed to gain in weight since the preceding September (four months), as compared with 27 per cent. who failed to gain in the first semester (five months) of the school-year 1932-33. Employment under the CWA became quite generally effective in the early part of December, 1933; the

last month of the period, and therefore, could not have been the determining factor in bringing about the improvement in the nutrition of undernourished children, this last fall and early winter as compared with the results observed during substantially the same period of the preceding year.

*Results of Experiment with a Noonday Health Class.* In one school in the Central District where 19 per cent. of the children enrolled were found 10 per cent. or more underweight in September, 1932, the highest percentage found that year—and 30 per cent. were underweight when weighed in September, 1933, an experiment was started in the fall of 1933, with a view to giving these undernourished children a rest period in school in addition to supplementary feeding. This was deemed advisable because 51 per cent. of the underweight children in this school had shown no gain at the end of the school year 1932-33, as compared with an average of 25 per cent. in all the public elementary schools. This failure to gain occurred in spite of the fact that a special effort was made by the Parent-Teachers Association of that school to provide all the undernourished children with milk in school.

This is the school referred to above where a large percentage of mothers are employed and living in small apartments in made-over old residences.

It was noted that the children in these families were often expected to prepare their own noonday lunch.

It was, therefore, decided to have them bring their lunches to school and to supplement them with milk and one hot dish. The Parent-Teachers Association undertook the task of preparing the additional food and serving these children with their lunches thus supplemented, at tables set in the kindergarten room.

After eating their lunches, the children rested on cots for a period of 45 minutes under the supervision of a classroom teacher.

Twelve children in grades 4 to 8 inclusive continued in this so-called "Noonday Health Class" for a period of about five months. When the class was disbanded last March, all had made substantial gains, ranging from 5 to 13 pounds. Five made their expected annual gains in this period. All the others made more than half of their expected annual gains.

Although the experiment was conducted on a

small scale, the results were encouraging especially in view of difficulty that had been experienced in the efforts made to improve the nutrition of these children during the preceding year.

*Results of Weighing at End of Second Four Months Period School Year 1933-34.* On account of the shortening of the current school year it was found convenient to summarize the results of the re-weighing of the underweight children at the end of periods of four months and to calculate the gains on the basis of a third of a year.

The results of the re-weighing in May, 1934, just completed, of the children in the elementary schools who were ten per cent. or more underweight when weighed in the preceding September are shown in Table 3.

TABLE 3	
Results of Reweighing Underweight Children—All Elementary Schools—May, 1934	
Comparisons with January, 1934	
Number Under Observation.....	2,161
Made Expected Gain (One-third of Annual).....	863
Made Some Gain.....	665
Remained Stationary .....	288
Lost in Weight.....	219
Absent or Transferred.....	126
Per Cent. Made Expected Gain (One-third of annual)...	40
Per Cent. Made no Gain.....	23

An analysis of the results in the various school systems shows that the gains and losses ran rather uniformly throughout.

In the schools in the better residential neighborhoods 38 per cent. of the underweight children made their expected gains and 21 made no gains, as compared with a record of 41 per cent. making their expected gains and 25 per cent. making no gains in the other sections of the school district.

By comparing the results shown in Table 3 for the second four months, with those in Table 2 for the first four months of the school year 1933-34, it appears that the results in the latter period were far less satisfactory. In the second four months only 40 per cent. of the children under observation made their expected gains, as compared with 79 per cent. in the first period. Twenty-three per cent. made no gains in the second, as compared with five per cent. in the first.

Before accepting these figures at their face value, it must be determined if the results noted were influenced by other factors than the efforts made to improve the nutrition.

In this connection it must be noted that an



extensive measles epidemic occurred during the second four months period. A total of 1251 school children in the District had measles. This corresponds to 11 per cent. of the enrollment in the elementary schools.

The majority of the children who contracted measles and who were also under observation on account of their underweight showed losses, or no satisfactory gains in weight.

In addition the seasonal factor must be considered and is probably responsible for much of the difference observed in the results of the January and May weighings.

Mallinghansen's pioneer observations on the seasonal variation in the growth of children has been substantially confirmed by a host of investigators since his time (1883-86). He found that the seasonal variations in growth can be divided in three periods as follows:

1. Period of maximal growth—4½ months—begins in August and ends in mid-December.
2. Period of mean growth—4½ months—begins in mid-December and concludes at the end of April.
3. Period of minimal growth—3 months—from end of April to end of July.

Great differences in the rate of growth were found in these periods. The gain in weight in the maximal period often was two or three times as great as that of the middle period and all that was gained in the middle period might be lost in the period of minimal growth.

Roberts<sup>2</sup> reviewed the literature on this subject. The investigations quoted show that as a general rule "the period of maximum gain falls in the late summer and early fall; the period of minimum gain in the late spring and early summer, and that this tendency is more marked with girls than boys."

From these findings she concludes that "for a nutrition class to gain two or three times the average expected rate in the fall might mean no gain above what the children would have done without any nutritional care, since this is the period of rapid growth, whereas a gain of even this expected rate in the period of minimal growth might be real achievement." She recommends that expected gains should be computed according to the season of observation.

Tables showing the expected seasonal gains for various age periods of boys and girls are not

readily available, but could be constructed from the findings of the various investigators in this field.

A comparison of the results shown in Table 3 with those in Table 4 throw light on this subject. In Table 4 the expected gains and losses are compiled on the basis of two-thirds of a year and the weights in May contrasted with the September weights.

TABLE 4

Results of Re-weighing Underweight Children—May, 1934—  
All Schools

May Results Compared with September, 1933

Total Number of Children Under Observation.....	2,164
Made Two-thirds of Expected Annual Gain.....	1,324
Per Cent. Made Two-thirds of Expected Annual Gain..	61
Made No Gain.....	78
Per Cent. Made No Gain.....	4

By this comparison, the results appear to be much better due in part, no doubt, to the greater gains made naturally in the period of maximal growth from August to December. The percentage of children failing to make any gain is lower primarily because the period of observation is eight months instead of four.

If the extensive measles epidemic had not occurred in the second four months, the results shown by this comparison would have been still better.

The weighings in January and May showed that a greater improvement in weight of the underweight children occurred in the poorer sections of the city during the first four months of the current school year and that during the second four months this occurred in the better residential sections. The measles cases were fairly evenly distributed in the schools of the District, occurred earlier in the poorer than in the better sections, and therefore, would tend to bring the final weights down more in the latter sections of the city.

#### CONCLUSIONS

It may be concluded from these observations that:

1. There is a nutritional problem in the schools which is accentuated by the unemployment situation.
2. The children found ten per cent. or more underweight serve as a good basis for the attack of this problem.
3. About two-thirds of these children show evidences of malnutrition by physical examination.

2. Roberts, Lydia J. *Nutrition Work in the Schools*, 1927, page 88.

4. Observations made in the schools and homes show that there is need for stressing the necessity of providing milk for the growing child, especially when the wage-earners are unemployed.

5. That the supplying of milk in school to the undernourished children and the placing of an adequate supply of milk in the homes of families where the children were found underweight, and the wage-earner was out of work, were to a large extent responsible for the greater improvement of nutrition observed during the first four months period of the current school year.

6. That a rest period during the day, as tried out in connection with the "Noonday Health Class," is an effective means of improving the nutrition.

7. That unless seasonal variations in growth are taken into consideration in computing the expected gains in a period of less than a year, misleading results may be obtained.

8. Acute illness, which nearly always results in a loss of weight and when occurring on a large scale as during a measles epidemic, affects the nutritional status of the children during the season of its occurrence.

9. That unless all these factors can be eliminated, the simplest and most accurate way to gauge the improvement of nutrition in a given group of school children is to make the comparisons of height and weight on an annual basis.

10. Gains and loss over a shorter period than a year say, a semester, are valuable for comparing the results in such period, with the same period in another year and especially for noting the trends of individual cases.

11. In view of the fact that the opening of the schools in the fall comes at the end of the period of minimal growth, it might be less alarming to use the June weights and heights as the basis for computing the percentage of underweight children in the schools from year to year.

#### DISCUSSION

Dr. J. W. H. Pollard, Evanston, Ill.: I have looked forward to the privilege of listening to Dr. Koehler's paper with keen anticipation. I have been amply rewarded for my patience.

Dr. Koehler very kindly forwarded me a copy of his last annual report at the time it was issued. The completeness of his school hygiene program and the thoroughness with which all the details have been worked

out immediately aroused my interest. He is to be congratulated not only on the completeness of his school hygiene set-up but also upon his foresight in developing a program to meet local conditions rather than to attempt to mold the local situation to a preconceived theoretical idea.

Dr. Koehler's deductions, resulting from the data which he has accumulated, have brought to light some very interesting facts, particularly along the lines of seasonal growth and rest in the child's physical development, the part that proper nutrition plays in this development and the unfortunate reaction, locally, of the prolonged period of economic depression.

Speaking of the depression and its reactions, as this situation developed I felt convinced that there would be a marked increase in the incidence of the acute contagious diseases resulting from lowered vitality due to malnutrition. But my surmise at that time has not been borne out, for the incidence of the contagious diseases as a whole has, I believe, been the lowest during the past year of any like period in the annals of public health.

Dr. Koehler's data on malnutrition among the Springfield school children indicates that the great majority of the children came from families who were receiving public relief. The question has arisen as to the proper balancing of the rations that the public relief officials are distributing. Since the ratio of malnutrition is not a constant, but varies from community to community, the part played by the mother in preparing the family meals might be an influencing factor. An intelligent and resourceful mother, even if the family's pantry supply is limited, will prepare a balanced diet for her children. Any mother who does not appreciate food values and what nutrition means will not blend those food-products satisfactorily from a nutritional standpoint, irrespective of any quantity and variety of foods which she may have at her disposal.

With the basic problems of a public health program, viz., sanitation, water and milk supply and the communicable diseases, now well under control in the great majority of communities, the conservation of child life comes to the front as one of the worthiest projects now being undertaken. The approach to this project varies from community to community. The sponsorship may be municipal or private. Local conditions will, naturally, largely determine the methods of procedure; but the results sought are identical. Dr. Koehler's investigations of the frequency and causes of malnutrition among the school children of Springfield and his program, already in successful operation, for their correction is an ideal illustration of one method of approach.

Conservation of child life! I don't know of any activity that is more satisfying or more apt to increasingly stimulate your enthusiasm than to feel you are doing something to protect, develop and bring up to normal manhood and womanhood the child life of our country.

Dr. Koehler, may I add my congratulations to those of your numerous friends on the excellent constructive work you are doing.



## THE PRINCIPLES OF THE SURGICAL TREATMENT OF THE JAUNDICED PATIENT

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There is no condition in the field of surgery which requires more skillful attention than that encountered in the jaundiced patient, if the issue is to be carried to a successful termination. So little is known of the fundamental processes involved and so much of the treatment, although beneficial, is empirical, that the entire procedure must be evolved in a methodical manner. There is no question but that an apparently hopeless case can often be restored to comparative health and comfort if sufficient skill and good judgment be exercised.

It must be accepted as a fundamental concept that those processes and conditions which produce the jaundice and are associated with it, affect not only the biliary ducts but the liver parenchyma, heart, kidneys, brain, pancreas and the ductless glands and, no doubt, all the essential organs. The mechanism of the production of jaundice is still a question. A high degree obstruction of the common duct may be accompanied with but little jaundice while profound jaundice may be associated with little or no duct obstruction; moreover, some patients who are deeply jaundiced may not be ill while others who are sub-icteric may be profoundly so. It is my belief that we are prone to estimate the condition of our jaundiced patients by the degree of pigment discoloration of the tissues rather than by a true evaluation of the condition of the essential organs and functions of the body as a whole.

Jaundice which signifies a yellow bile pigment discoloration of the body tissues, when produced by an obstructing lesion of the common or hepatic bile duct, in many instances, is associated with a group of symptoms or conditions which are of more clinical value than the discoloration of the skin. I refer to such states as the tendency to excessive bleeding, a subtle toxemia, anemia, dehydration, starvation and a mineral or chemical disbalance including the acid-base poise. These chemical changes in the body tissues are given little consideration by the average clinician but

it seems reasonable to assume that they play a definite rôle in the issue.

The principles involved in the surgical management of the jaundiced patient may be grouped into those concerned with the pre-operative preparation, the operative procedure and the post-operative care. Of these I believe that the pre-operative preparation is the most important.

The subject is too large to be covered adequately in the time allocated; however, I should like to discuss in some detail a few of the more important anatomic and physiologic disturbances

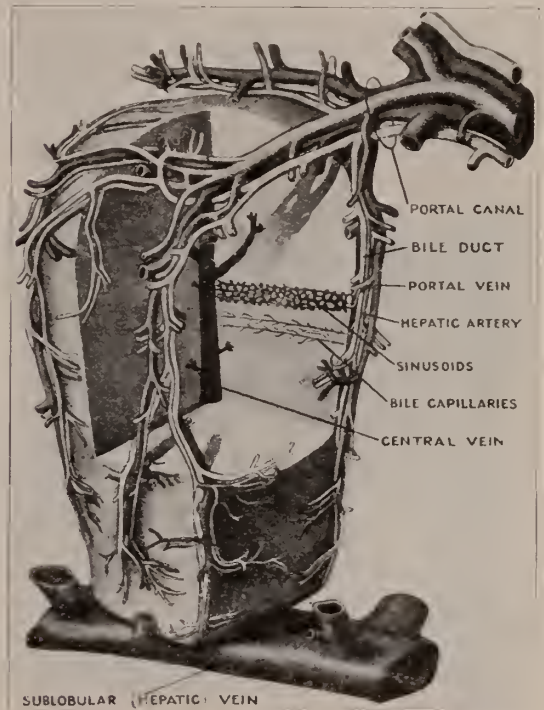


Fig. 1. Schematic Representation of a Hepatic Lobule (somewhat similar to an illustration by Braus). The relationships of the vascular and bile-duct systems and their relative size are indicated. (From Elliott and Nadler: Diseases of the Liver. Tice Practice of Medicine, Vol. 7. W. F. Pryor Company.

in the liver which may be encountered in the jaundiced patient and which, I believe, are important factors to be considered in the management of the patient.

In order to fully comprehend the rôle that the liver plays in duct obstruction it may be well to consider its microscopic anatomy. The major blood supply of the liver cells is derived from the portal blood stream. The liver lobule consists of many strands of liver cells, each strand being composed of a bile capillary surrounded by liver

cells. In the center of the lobule is the central vein. (Fig. 1) In the periphery of the lobule there course branches of the portal vein so that with each strand of liver cells with its capillary bile duct there is formed an extensive network of blood vessels, the sinusoids. (Figures 2 and 3) The liver cells, therefore, are bathed in a liberal supply of portal blood flowing to the central vein and thence to the sublobular and into the hepatic vein. The blood flows from the periphery of the lobule toward the center while the bile in the capillaries flows from the center to periphery. The hepatic artery supplies the ducts with arterial blood. It is, therefore, apparent that any substances carried by the portal vein come into intimate contact with the liver cells. Food substances are extracted and noxious elements are detoxified. Bacteria from the intestinal tract

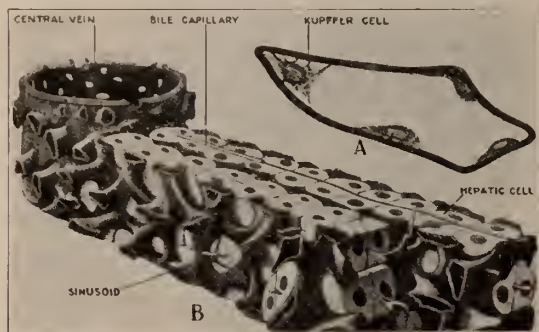


Fig. 2. B. Portion of a Liver Lobule Showing Two Liver Cell Cords, Partly Cut Away. The relatively massive network of sinusoids is depicted in their intimate relationship to the liver cell cords and to the central vein of the lobule into which they drain. There are no valves in the veins between the sinusoids and the heart. The relationships of the intralobular bile capillaries whose walls are formed by the liver cells themselves are illustrated.

A. Cross Section of a Sinusoid Showing the Location and Relative Size of the Kupffer Cells Anchored in Its Wall and Forming an Incomplete Lining. (From Elliott and Nadler: *Diseases of the Liver*. Tice Practice of Medicine. Vol. 7. W. F. Pryor Company.)

which may enter the portal circulation and are carried into the liver may be destroyed or filtered from the blood stream. It is little wonder that the most common organisms that are found in the liver and biliary tract including the gall-bladder are those which inhabit the intestinal tract.

Glycogen is stored in the liver cells and it is believed that an ample supply is necessary for proper function of the liver cell since Davis has shown that a liver well supplied with glycogen is refractory to large amounts of either chloroform or carbon tetrachloride. Whipple and Gra-

ham have called attention to the fact that young pups which are remarkably resistant to chloroform poisoning when starved or treated with phlorhidzin lost their resistance to chloroform. It has been shown that pups have a high liver glycogen and that starving or phlorhidzin reduces this glycogen content. Althausen believes that dextrose neutralizes many exogenous and endogenous toxins by partial or complete oxidation. Davis and others have shown that the injured liver repairs more rapidly under carbohydrate therapy. Ravdin also demonstrated this fact in experimental jaundice following duct ligation and has shown that the administration of glucose reduces the prolonged coagulation time of the blood in the jaundiced patient.

In the presence of a common or hepatic duct obstruction changes take place in the liver; some quite early, others late, the time depending upon known and unknown factors. With infection within the ducts a peripheral cholangitis with hepatitis makes its appearance; moreover, it is a known fact that when the excretory duct of a secreting organ becomes obstructed, the pressure within the duct will equal or exceed the secretory pressure of the organ. When this level is reached, the cells cease functioning and have a tendency to degenerate in spite of apparent sufficient blood supply. This phenomenon is frequently observed in the kidney with an obstructed ureter. A similar process occurs in the liver and since the cells of the liver have other functions beyond the secretion of bile it seems logical to explain phases of liver deficiency upon this basis. When no dextrose had been administered to the patient, the liver cells in the presence of obstructive jaundice as well as in cases of liver damage in cholangitis and hepatitis have been shown by Althausen to be "... narrow and their cytoplasm takes a dark stain. The sinusoids and bile capillaries are wide." Althausen further states: "On the other hand, the hepatic cells in section from patients who received large amounts of dextrose by mouth are literally filled with glycogen and have the appearance of those of the rabbit with 10.8 per cent. of glycogen in its liver. In these sections the large, clear intracellular spaces represent granules of glycogen and the cells themselves are so distended that the blood and bile channels are compressed." "My observations prove that even the severely injured liver in the rabbit and in man does not lose its ability to store glycogen but will do so to a marked degree when sufficient exogenous dextrose is provided. This also supports the view that the low level of hepatic glycogen in diseases of the liver is due to a shortage of carbo-



hydrate in the body caused by the slowing of the transformation of non-carbohydrate material into dextrose. When enough sugar is supplied to relieve the persistent demand on the liver for more carbohydrate, this organ at once begins to store glycogen. The fact that lipemia, ketosis and relative hypoglycemia are observed in cases of hepatic disease and also in starvation is another link in this chain of evidence that in diseases of the liver there is an internal hunger for carbohydrate."

This evidence immediately suggests a clue relative to the cause or mechanism of forms of toxemia associated with biliary duct obstruction.

The toxemia which exists in the presence of an obstructive jaundice has been studied in much detail yet the definite toxic factor has not as yet been found. It is believed by some that the bile salts are the offending substances; however, this does not account for the phenomenon present. The cause of the toxic state can be analyzed into several component factors: 1. Sepsis due to a bacterial invasion of the liver as represented by a hepatitis and cholangitis. 2. An intoxication produced by the lack of the detoxifying action of a damaged liver. 3. A deficiency state due to the lack of absorption from the intestinal tract of substances secreted by the liver in the bile under normal conditions. 4. Possibly a protein intoxication due to autolysis of the liver cells and the absorption of toxic by-products. The latter is an interesting suggestion in the light of the response of the toxic patient to the ingestion of a high protein diet.

The tendency to excessive bleeding is a serious menace to many patients who are suffering from an obstructive jaundice. Little is known of the cause for the marked failure in adequate clotting of the blood; this in spite of extensive experimental investigation. The work of Ravdin throws some light on the problem so far as treatment is concerned. Hemorrhages may take place into the tissues or what is more frequent, severe and often repeated gastro-intestinal bleeding. The latter is often due to a newly formed duodenal ulcer. Various investigators have shown experimentally that when the bile is prevented from entering the duodenum, ulceration is prone to develop; this ulceration being the immediate cause of the hemorrhage. The production of the ulcer cannot be based upon the theory of alkalinization or lack of alkalinization of the duodenal contents since Blanck has shown that in the presence of a complete external biliary fistula in the dog, the introduction of sufficient bile into the stomach will

prevent ulcer formation. It would appear that the cause lies in a deficiency state. The tendency to excessive bleeding is a serious handicap to any surgical procedure contemplated and unless the condition is within control, a fatal termination is to be expected. Even in those cases in which the operative procedure can be carried out without excessive bleeding, the tendency to secondary hemorrhage is exceedingly great and there is nothing more terrifying than the appearance of a general oozing from the wound or mucous membranes on the third to the fifth post-operative days. Repeated minor hemorrhages, long continued infection or toxemia, lack of proper nourishment with a vitamin deficiency, vomiting and a mineral and chemical disbalance contribute toward the production of the anemia.

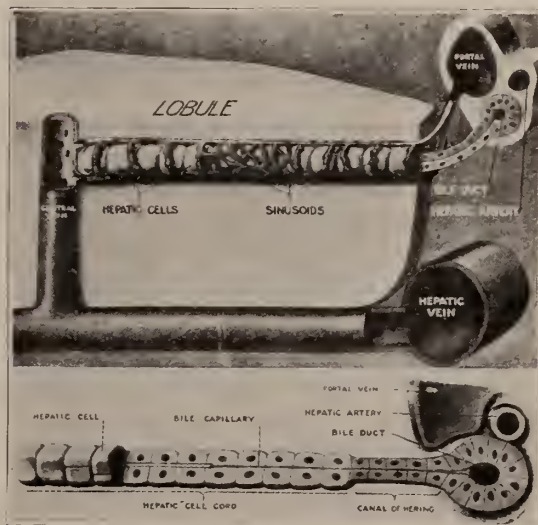


Fig. 3. (Above) Schematic Representation of a Portion of a liver lobule showing the relationships of a single liver cell cord to the bile capillary and to the venous channels.

Fig. 3. (Below) Schematic drawing of a naked liver cell cord partially cut away to show the bile capillary. Liver cells form the wall of the intralobular bile capillaries; they undergo a gradual transition to form the canal of Hering and finally the bile duct. (From Elliott and Nadler: Diseases of the Liver. Tice Practice of Medicine. Vol. 7. W. F. Pryor Company.)

Inanition and dehydration incident to excessive vomiting during acute attacks with jaundice or the inability to take sufficient nourishment or water is a preoperative condition worthy of consideration. This condition is often associated with a disturbance of the acid base balance, hence a carbondioxide combining power of the blood

plasma test should be made. It is needless to say that a state of impending alkalosis or acidosis should be corrected before an operation is attempted.

When reviewing the facts enumerated relative to the preoperative condition of the patient it becomes apparent that the principles of the surgical management of the jaundiced patient resolve themselves into an adequate preoperative regime, the removal of the obstruction and an adequate post-operative control.

It has been shown that the liver demands sugar or rather glycogen for proper function, also that in the event of starvation or liver damage, the liver glycogen is reduced. Further it has been established that the damaged liver can convert exogenously given dextrose into glycogen and store it in the liver; therefore, sugar should be administered in amounts sufficient to restore liver glycogen. The administration should continue over a period of days, the time being decided upon evidence presented by the individual case. The more toxic the patient is, the more time, as a rule, must be consumed in restoring liver glycogen. I should like to reiterate my frequently expressed dictum: "Do not allow yourself to be rushed into performing an operation before the patient is adequately prepared."

The method of sugar administration will depend upon the condition of the patient and his ability to take sugar. Preferably it should be given by mouth. It has been my experience that sugar introduced into the gastro-intestinal tract will build up an adequate liver glycogen more rapidly and more surely than when it is given in any other way. Sugar may be given in the form of a high carbohydrate diet giving such foods as rice, potatoes, sweet fruits aided by candy, karo syrup, honey and cane sugar. The amounts depend somewhat upon the individual—150 to 300 grams daily. In some instances even more will be tolerated by the patient. It is well to remember that the amount should not be pushed to the extent that sugars become nauseating to the patient, the tolerance should be built up gradually. When vomiting is present or if the patient cannot take the required amount by mouth, dextrose or glucose should be given intravenously. When given intravenously, the sugar is introduced directly into the blood stream and at times a considerable amount is wasted since por-

tions may be eliminated by the kidneys. When given into the gastro-intestinal tract, the absorption is slower and time is allowed for conversion into glycogen; however, there are times when the glycogenetic process is embarrassed and a glycosuria is present. A word of warning may be issued relative to the use of insulin under such conditions. It seems rational to suppose that in the presence of a glycosuria in a devitalized patient with liver damage insulin might be indicated. These patients do not respond well to insulin. I have had two patients recently in which a profound hypoglycemic shock was precipitated with 5 units of insulin. Recent work on the action of the hypophysis and the hypothalamus in carbohydrate metabolism may eventually throw some light upon the subject. Glucose may be given intravenously in solutions from 5 to 50 per cent. depending upon the necessity for water. We rarely use the more concentrated solutions, depending upon 10 per cent. dilution.

There is no test that I am familiar with which will indicate a re-establishment of the liver glycogen. Theoretically the bromsulphthalein test should give us definite evidence; however, it is known that even in the presence of extensive liver damage, the remaining portion of liver tissue may eliminate the dye. This is another evidence of the "safety factor" of essential organs. It is my conviction that in the event of a markedly increased bleeding and coagulation time, the appearance of a bleeding and coagulation time within the normal following the repeated administrations of glucose is the best criterion available at the present time. In the presence of a complete obstruction of the duct and in the event that glucose administrations and blood transfusions do not accomplish the desired purpose, a rapid decompression operation—drainage of the gallbladder or duct—should be done and the administration of sugar continued without an interval. This procedure should always be preceded by a blood transfusion. When the condition of the patient has improved sufficiently, the more extensive operation may then be undertaken with considerable hope for success.

During the preparation of the patient the protein diet should be basal since it has been shown that the obstructed patient tolerates proteins badly, in fact, a fatal result can be precipitated by a relatively high protein diet.



In the event of an anemia or when the red blood cell count is below 3,000,000 one or more blood transfusions should be given during the time the patient is receiving glucose. Sufficient water must be given at all times and when the patient cannot take it by mouth, subcutaneous administration of physiologic salt solution or Ringer's solution must be resorted to. Care must be exercised that too much salt is not given the patient with damaged kidneys, leading to a salt retention. This can be prevented by the use of 5 per cent. glucose solution instead of salt solution.

If the patient has continual vomiting over a period of time so that the element of starvation is in evidence, the problem at once becomes more complex. Under such conditions the toxemia may continue even though the bleeding time may be within the normal range. When such a circumstance exists I believe that jejunal feeding is of decided benefit. Seldom will a duodenal tube pass through the pylorus because of spasm. A rapid laparotomy with implantation of a tube into the jejunum can be done in most instances and at once fluids may be introduced into the gut through the tube. Within 12 hours a specially prepared pabulum can be given and within a few days the patient can be fed daily 3000 calories in the form of a properly balanced diet. In this manner water, nutritional, mineral and vitamin balance may be established and maintained over a period of time with no inconvenience to the patient. I believe that this procedure is a life saving measure in selected cases.

So far as the operative procedure is concerned I have little to say except to urge the use of two stage operation more frequently. I believe that the error often committed in common duct surgery is that too much operative work is done in an effort to correct the parts involved. These patients do not tolerate long operative procedures unless unusually well prepared. Any abuse or exposure of the liver may precipitate a physiologic breakdown; moreover a secondary kidney failure due to either the prolonged or severe toxemia may intervene. In the event stones are removed from the common duct, I believe it wise to drain the duct so as to prevent a secondary obstruction by edema. In spite of the short duration of this secondary obstruction it may be the lethal factor in a patient who is still critically

ill and who has just been subjected to a devitalizing operative procedure.

Time does not permit a discussion of the details of the operative procedures. It must suffice to say that the keenest surgical judgment must be exercised at all times.

The post-operative care of the jaundiced patient is no less important than the pre-operative. It is my honest conviction that patients may be efficiently treated from an operative standpoint and yet a fatal termination ensue because of a lack of an understanding of the post-operative management. Liver glycogen must be maintained by the continued use of sugar. In the anemic patient and especially if considerable blood has been lost during the operation a transfusion should be given immediately after the operation. The patient must not become dehydrated. If nausea and vomiting persist, gastric lavage should be done and if a considerable amount of gastric contents is evacuated, the tube should be left in position and the stomach kept empty by frequent aspirations. Great care must be exercised during the first post-operative week since the patient is combating not only the disease but the results of the operation. The state of nutrition, water balance, sugar intake and the loss of vital substances such as minerals and chlorine must be constantly observed.

In the presence of a total external biliary fistula it may become necessary to introduce bile into the gastro-intestinal tract. This may be accomplished with the stomach tube or bile may be given in grape juice by mouth. In the presence of a jejunostomy, emulsified bile may be introduced through the jejunal tube.

A word relative to "High Temperature Deaths" following gallbladder and biliary duct surgery may be in order. This bizarre post-operative tragedy, in many instances, gives little warning and may occur in a patient who appeared to be in good pre-operative condition. The state preceding death has the characteristics of an allergic reaction so profound as to destroy life before it can be combated by an internal mechanism. I have seen far less of this condition since I have prepared the patient more efficiently pre-operatively.

In conclusion I should like to emphasize several points in the management of the jaundiced patient: 1. Adequate pre-operative preparation

of every patient along the line presented in this paper. 2. Judicial and meticulous surgical technique and judgment. 3. Efficient post-operative management which is identical with the pre-operative preparation. Close adherence to these principles will markedly reduce the mortality in biliary surgery.

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### DISCUSSION

Dr. H. A. Bollaert, East Moline: I should like to ask Dr. Wolfer to what he attributes these allergic reactions which he mentioned. I wonder how he explains them.

Dr. John A. Wolfer, Chicago (closing): Relative to Dr. Bollaert's question, there are many possibilities. No doubt the operative trauma to a damaged liver is a factor. If we look at it in this way: we have a badly damaged liver whether due to disease or secondary effects of obstruction; we will assume that the glycogen content is very low and we add to that the trauma of the operation. We wonder about some of Crile's theories, but they are not theories when he speaks about lowering the temperature of the liver with operation. Some years ago he used diathermy to keep up the temperature of the liver. It is possible that the exposure of the badly damaged liver to a lower temperature, together with the foreign proteins which are liberated during the operation, tend to bring on this allergic reaction. There is something that is set off like dynamite and an explosion occurs. We have used adrenalin and once in a while brought the blood pressure back, but most of the time it has had no effect and the patient died. I do not think the cause of death in these cases has ever been proved but some time perhaps we may find it.

## RHEUMATIC HEART DISEASE IN SCHOOL CHILDREN

RAY E. LOGAN, M. D.

GALENA, ILL.

The basis of this discussion of rheumatic heart disease in school children rests upon an actual clinical experience covering six years of observation of cardiacs in the elementary schools of the city of Detroit. Our statistics have been obtained practically wholly from an average number of 471 children, who were followed in their work during the school years of 1928 to 1931, inclusive. Only a small group was seen in the high schools and none in the parochials. This work was done by myself, with the assistance of one full time nurse assigned to the work and with the assistance that regular school nurses could give us. It was impossible, therefore, to make use of all records as a number of these were incomplete in some detail. Our conclusions are made from groups of fully completed histories and records, making a composite picture. Our findings are corroborative of other observers of large groups of children with heart disease. We have taken freely of extracts from the literature in comparison with our study.

TABLE 1

Totals of number of children examined, admitted and studied Detroit Elementary Schools:

	1928	1929	1930	1931
Children referred for exam.....	603	721	4,364	800
Class I-IIa-IIb-E-F — Children admitted .....	420	403	635	525
Number studied .....	420	142	635	525
Number of organic Rh. heart.....	305	101	378	335
Per cent of Rb. heart to cases admitted .....	72.6	...	61.1	63.8

The average number of children in all the elementary schools of Detroit during the years 1928 to 1931, inclusive, was 236,645. Our work included only children referred from this age group. Presumably a relatively large number were not referred, for various reasons. An average of 339 rheumatic valvular heart disease cases were in school each year. This would give an estimated rate of 1.4 organic rheumatic hearts per 1000. This definitely low rate is probably due to the reasons already given, and because that while the parochial schools were included in the total enumeration, yet we have no accurate data as to the actual number of cardiacs in the

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latter schools. In examining 2317 children in a regular school in an industrial center, we found 8 cases of organic heart disease, a rate of about 4 per 1000, none of whom were known previously. Nine cases of organic heart disease were found in a suspicious group of 117 in four high schools. Only one of these had been under observation in the elementary grades. From this data we believe that, 5 to 6 per 1000 can be safely assumed to be the rate of organic heart defects in Detroit schools. This compares favorably with the figures of 6 to 7 per 1000, found in examination of the entire school population in Boston and New York City, and of 7 per 1000 in 598,167 children in Wales (1924). It is likely true that no school survey can be 100 per cent accurate, owing to absentees, children ill at home and in hospitals. Furthermore, it is evident from the large number of functional hearts erroneously referred as organic cases, that the examination of such children must be done with regard to a uniform method of procedure to obtain acceptable diagnoses.

The material for our study of the rheumatic heart problem was obtained from referrals of true and suspected rheumatic infection and rheumatic heart disease, by private physicians, clinics, welfare organizations, and from the nursing inspection service of the department of health. Thus we had children from all over the city placed in more than 60 units where special rooms were set aside, as well as a number of small schools built with especial regard to ventilation and sunlight for the care of undernourished, convalescents, tuberculosis contacts and deformed children. The large number of rheumatic histories; children with possible and organic heart disease found in those admitted for this building up program, prompted the forming of cardiac groups as well. This was the beginning of the school care of heart cases. On the average, during my work, about 100 of the heart group were transported each year by a bus to and from school. The object of the care of rheumatics was to furnish a longer period of convalescence, lessen the school schedule burden, give the benefit of fresh air and periods of rest and permit a better supervision of activities at home and school.

That rheumatic infection and its accompanying cardiac involvement is largely an urban

problem is quite definitely established. True, there is no literature on the prevalence in smaller towns or in rural districts, but undoubtedly, accurately kept records of physicians in these localities would show a surprising number. Without question the factors of overcrowding, vitiated air, poor housing, unbalanced diets, climate, etc., are predispositions to the disease. Wherever the disease is found, it is certain that rheumatic infection is fundamentally a problem of childhood, and a study of heart disease in children resolves itself into a study of that infection. In onset at an early age, progressiveness of anatomical changes, recrudescences and chronicity it is strikingly similar to tuberculosis and attention to this was called as early as 1888, by Garrod.

The recognition in the past few years of the fact that rheumatic fever may manifest itself in a variety of forms, with general systemic manifestations, rather than local; with insidious onset rather than fulminant, makes it desirable to recognize this as a definite disease entity and has rendered the term rheumatic infection more fitting than the former. It should be remembered that in children arthritic symptoms are comparatively uncommon. We found that the finding of a heart defect was the first indication of rheumatic infection in a large percentage of the children.

The etiological organism of the disease is undetermined. Suspicion rests quite solidly on the streptococci. Apparently certain children are more prone to infection than others. This may be due to natural immunity as in other acute infections, or as Swift's work would suggest, the possibility of a specific sensitivity to certain of the streptococci. The influence of hereditary predisposition is quite probable as in tuberculosis and much evidence may be found to indicate infection spread through contact. Histories of 525 children in the schools in 1931 show that 100 children had family contact with rheumatic infection. Two children in one family were in school with rheumatic heart disease and four in one family at our clinic at the Grace hospital. Review of the literature will indicate that these figures are not mere accidents.

The influence of sex, race and focal infection are of interest. A review of our records for

the three years of 1928-30-31 showed that 56 per cent. of the total case load were girls and 44 per cent. boys; 30 per cent. of these came from homes rated as economically good to excellent and 70 per cent. from mediocre to poor. The children of Polish, Jewish and Italian parentage predominated in the order named. Contagious diseases and foci of infection are known to be the apparent inciting cause of a rheumatic attack and the general feeling is that defective teeth, tonsils and infected sinuses should be eradicated. Of 525 children in 1931 there was a history of tonsillitis in 228; 273 had been tonsillectomized; 67 had rheumatic infection after tonsillectomy. The histories suggested that the first recognized attack followed scarlet fever in 28 and tonsillitis in 138. One case definitely was due to an infected tooth. Presumably the school health program with attention to prevention of contagious disease and removal of infectious foci has had an influence, for Glover in England and Atwater in the United States have shown that there is a marked fall in rheumatic infection in the past 25 years, and the *Illinois Health Messenger* of Feb. 1, 1934, states that the death rate from heart disease in the ages below 20 was less than half that for the same age group, in 1922.

The lack of epidemiology and the too often inaccurately reported deaths from heart disease, makes it difficult to determine the incidence of rheumatic infection. It has been estimated to make up 3 to 7 per cent. of the admissions to general hospitals both in the United States and Europe, in certain regions. It is a disease of high morbidity due to its predilection to heart involvement especially in young children, but without this complication it has a low mortality (about 1%). In children, even the mildest attack may cause a cardiac involvement. This anatomical change may be the first evidence of the existence of acute rheumatism. Dependent upon the valve affected, the extent of the lesion, its activity and the convalescent care, the heart suffers permanent damage with a loss of efficiency and a certain amount of accompanying disability. Acquired heart disease is, in conservative figures, 65 to 80 per cent. of rheumatic origin in all ages and in children is probably nearer to 90 per cent. The mortality rate in children seems to be found at 10 to 12 per cent. and, as Stroud remarks, is about the same over

a 10 year period, in spite of the care given. In a three year period the death rate in Detroit schools was 3.4 per cent.

It is but a comparatively short time since it was considered useless to attempt to do anything definite for children with heart disease. However, results of prolonged convalescent care with supervision of the physical activities, removal of foci of infection and building up the natural resistance of the child has yielded promising results. The education of the child makes it necessary for the school to assume some of this problem. School programs for the cardiacs are being carried on in New York, Chicago, Boston, Philadelphia and Detroit. Convalescent care with school work is being done, notably in St. Louis, Philadelphia, New York and in England. The results have been very gratifying.

If an attempt is made to supervise cardiacs in the schools it is well to know the type and extent of the anatomical changes. To make a diagnosis of organic heart disease we adopted the same criteria for diagnosis as used in the Boston survey, i. e.—

Any definite murmur not a third sound, diastolic in time.

A clear enlargement of the heart.

A systolic murmur, definite and persistent.

Any one of the above was accepted as indicative of organic heart change. For the etiological diagnosis, rheumatic infection was accepted from history of arthritis, repeated tonsillitis, chorea, growing pains of duration, and unexplained fever, fatigue and subnormal weight,—and the type of valve defect.

Analysis of 328 definite organic hearts observed over a period of four years showed the mitral lesions were 70.5%, aortic 6.6%, mitral and aortic 6.9%. As a matter of comparison and interest, congenitals were 16%. Approximately 10% showed extreme cardiac enlargement. The type of lesion has a bearing on prognosis. Mitral insufficiency, which is the most commonly found, gives the least discomfort if there is no active infection. Mitral stenosis complicates the picture and these children are more prone to discomfort and to respiratory infection. The degree of hypertrophy, as might be expected, is an index of value in determining the expectancy of myocardial insufficiency. The prognosis of these heart conditions depends of course largely on the state of the myocardium. There were very few



abnormal rhythms associated with this organic heart group. Extrasystoles were quite frequent although transient, while auricular fibrillation occurred in only a few before death, as noted by Stroud and others

The age of the initial attack of rheumatic infection or at least the recognition of the heart

ing 366 cases among children found 78% between five and ten years.

The difficulty of making an estimate of a child's chances in school or of his having a recurrence of his original infection, is based on the well recognized characteristic of rheumatic infection to suddenly become reactivated, both systematically and in the endocardium. This one feature alone makes prognosis necessarily guarded. 75 children in the group of 211 gave a history of 1 to 5 recurrences, amounting to 100 attacks. 49% of these occurred in the first two years after onset. 34% came in the 3rd, 4th, and 5th years, with none after the 9th year. We found the greatest number of these recurrences between the ages of 8 and 12 years. A decrease in the probability of reinfection has been found

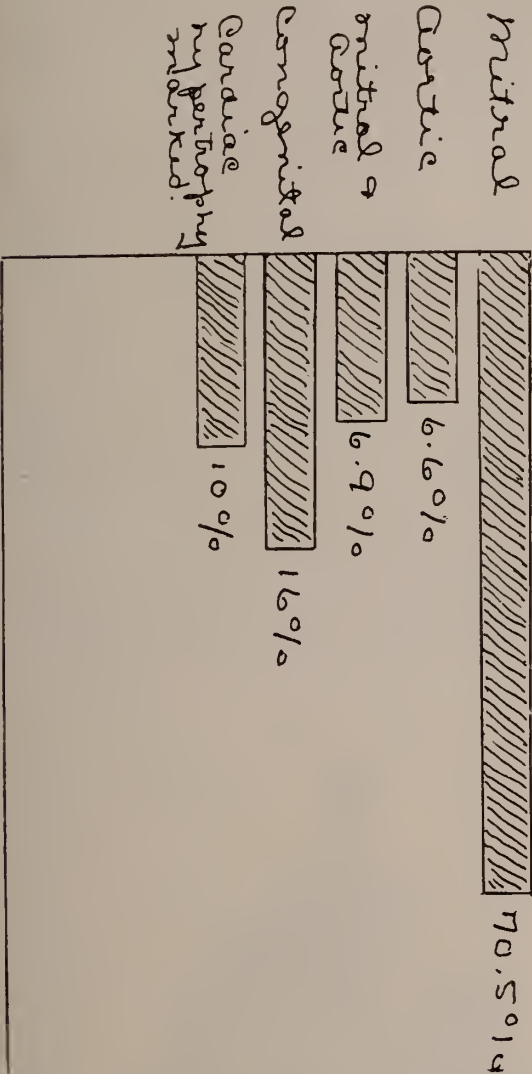


Chart 1. Percentage of anatomical cardiac valvular lesions found in average number of 328 school children (Detroit) during 4 years' special observation.

involvement is of value, owing to the more accurate determination of probable recurrences of infection. 211 histories were studied for the onset age. 99% occurred before the age of 15—70% being between the ages of five and ten. The average age was 7.4 years. Wilson, Ling and Croxford found 98% before the age of 15, the average age being 7.3 years. Mackie report-

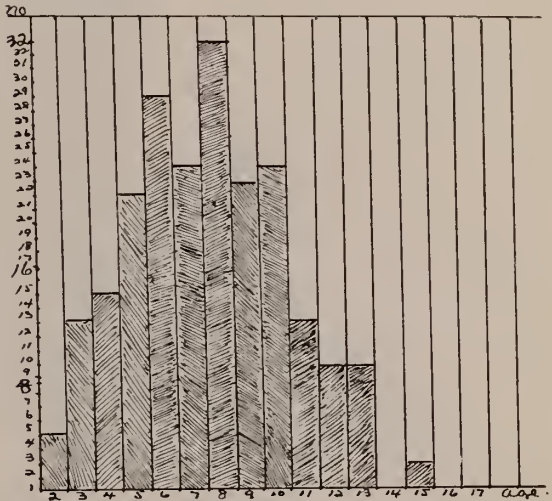


Chart 2. Incidence—Ages of onset. 211 children. Average age 7.4 years.

by all observers, after the 14th year. Mackie reporting 252 cases found 58.8% before the 4th year after onset with the greatest number, between five and ten years of age. He believes that recurrences will occur in 71% of rheumatic infection and may occur at any time regardless of age with the greatest probability of doing so, 1 to 4 years after the initial infection.

It will be found necessary to exclude certain children with rheumatic heart disease from school, because of the probability of danger of infection to others, to furnish the necessary rest for the heart or to build up resistance against an intercurrent infection. Most of the exclusions occur in the early winter months and in March and April. Undoubtedly this is due to the prevalence at these times of acute upper

respiratory infections. A number of our exclusions were found necessary because of low grade fever, fatigue and loss of weight in a child whose functional cardiac status may have been good.



Chart 3. Incidence of recurrence in years after initial attack. 100 recurrences in 75 of 211 children.

These findings undoubtedly indicate latent rheumatic infection and are the best criteria to adopt in school. In spite of the fact that in Detroit the cardiacs are given an easy schedule of work, that rest periods in school hours were enforced and intermediate feedings given, at least 8 to 10% were excluded each year for serious trouble, while 12 to 15% more were out for shorter periods of time; 10% were unable to finish school during the year of 1930, the largest number of any of the four years. Eight of these died. The fear of death at school is one of the annoyances of school work. Teachers and pupils alike voice this dread and makes it more difficult for the cardiac victim to escape a marked psychic unbalance. As a matter of fact, there is but little danger of such a happening. I do not find any

record of a death in school in the entire four year period. It may be said that in children, infection is the main reason for cardiac breakdown, and that exertion within reason is a minor factor.

In order to systematically regulate the activities of any group of cardiacs, it is necessary to rate each one according to some standard. We have such a standard in the Cardiac Clinical Classification, as recommended by the American Heart Association. Briefly this is:

- Class 1. Organic heart cases able to carry on ordinary physical activities without discomfort.
- Class 2. Organic heart cases unable to carry on ordinary physical activities without discomfort.
  - A. Slightly decreased.
  - B. Greatly decreased. Evidence of activity, etc.
- Class 3. Unable to carry on at all.
- Class E. Possible heart lesions for observation.
- Class F. Potential infections that may lead to organic change.

During the four school years those with anatomical defects were classified as 49.5% Class 1; 32.9% Class 2A and 4.7% Class 2B. Of those without definite anatomical change 13.6% were Class F. Possible heart disease or Class E are not considered here. Since Class 1 and 2A are apparently well children, then more than 80% of our children were fit for school. But rein-

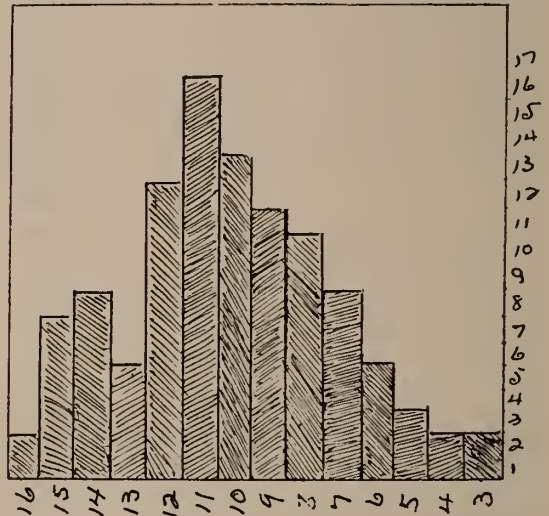


Chart 4. Table showing incidence of ages of recurrences. 75 children, 100 recurrences.

fection may occur and classification of function is changed thereby. Class F, unless free of symptoms, were not entered in the school. It was the policy in Detroit to admit a few of Class 2B, but this is not a wise plan as pointed



out by Halsey, who believes that exclusion of all 2B children is a therapeutic measure of prevention and a measure of conservatism for their benefit, as well as a measure of prevention of infection of the well children. Class 3 in school is out of the question. It is possible to furnish home teaching to certain of this group.

It might be expected that children afflicted with heart disease would be irregular in school attendance and such is the case. As is well said by Foster, in his discussion of the psychic factors of heart disease, "Whether children with heart disease fall behind their age in school through interruptions due to illness or to lowering of energy, it has been found that these children do show a certain diffidence and lack of initiative in school." Children with a heart affection naturally must miss a year or so of school work. Accordingly, when they are able to return, they feel the loss of this time more keenly than we may know. Also the nature of the affliction makes them the favored one at home and the favored and feared among the teachers. He also must endure the remarks of his thoughtless little friends about his inability or unwillingness to join them in the usual activities. Thus the child develops a warped personality which while not true alone for heart disease, is however, well marked in this group. The psychic unbalance of children with heart disease should be well understood by teachers as it is a field well worth while.

Whatever the cause, children with heart disease find it comparatively easy to find reasons for absences. In a study of the reasons for absence in New York City among a large group, 63% of these were found to be in no way connected with defects of the heart. In Detroit in one school room we kept the records of 42 children for one semester. We found 6 absences because of heart trouble; 19 were for acute colds and minor illness and 88 for reasons in no way necessary because of heart or health.

Since an education is vital for the cardiac child in order to give him the best chance at life without hard labor, this loss of interest in school is tragic. We attempted to overcome this by explaining to the children old enough to understand, their need for education in view of the disease, and that they could do well in spite of the affliction if they chose to do so.

Natural inclinations were favored toward some special objective. In spite of interest of teachers and nurses alike, a large number of our children dropped out of school after finishing the elementary grades.

That children with organic heart disease can make a perfect score in attendance is possible. We followed 38 children with organic hearts for one year in regular grade rooms who were allowed to do everything except competitive exercise and gym. No illness, no deaths occurred and no exclusions were necessary. These were all Class 1 and Class 2A. In comparison with the same class under careful supervision it would appear that, granted the cardiac lesion is quiescent, that regular school routine is as safe for them, as is special care.

With the exception of a majority of the congenital cases, children with organic heart disease are as bright mentally as the average child. I think it is safe to say that the instruction of the child with heart disease offers no more difficulties than that of the normal child.

Our observation of children with rheumatic heart disease in school and the studies of other large groups of children in the United States is indicative that the problem of the cardiac in school is one of considerable proportions. The prevalence of rheumatic infection and of heart disease, in the younger age group, the extremely probable infectious nature of the disease, make some recognition of the problem necessary, not only for the victim but for the good of the well children. The resemblance to tuberculosis in children is apparent, and the same routine now observed in tuberculosis may well be fitted to rheumatic heart disease.

Experience would indicate that children with rheumatic heart infection should not be admitted to school until cardiac function is definitely Class 1 or 2A, and even then the possibility of recurrence of infection during the first four years must be borne in mind. If such classes only are admitted, it would appear that they may well attend regular schools, with some restriction and observation by the school nurse and by their family physician.

Prolonged convalescent care in sanatoria has given excellent results and suggests the need for more extensive public health interest along these lines. To quote Schlesinger, "The pre-

vention of rheumatic heart disease in children is a national problem and will only be solved eventually by national resources."

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### DISCUSSION

Dr. Gerald Cline, Bloomington, Ill.: We have listened to a most wonderful paper on rheumatic heart disease in children. If I were to classify a rheumatic case, I would call him the neglected or forgotten child. So often we do not see them until they are bed-ridden. The ordinary clicking or murmuring heart of the child is not picked up until he has a definite picture of a cardiac embarrassment.

We do not see as many children with rheumatic heart disease in a smaller community like Bloomington as the Doctor has quoted from the Detroit School mainly because our children do not have as careful physical examinations.

I have a few questions that I wish to ask the Doctor: 1. I wonder if he has the experience that the allergic, rheumatic child is a little more prone to be a cardiac case than a non-allergic child. 2. What has been his experience with the sedimentation test in regard to an index for allowing the child out of bed and returning to school. Drs. Black and Elghammer in Chicago have done quite a bit of work with this sedimentation test and enthusiastically report its reliability.

Dr. Logan's paper has brought out the important point of an early diagnosis.

The three most important symptoms or complaints, namely fatigue, leg aches and night cries, must again be kept in mind. Night cries might be dreams but always must be kept in mind as the first signs of impending rheumatism.

The rheumatic child with pancarditis shows quite marked cardiac symptoms without fever yet so often we have been taught to watch the fever in these cases. Another point is that the child so often has a tender, slightly enlarged liver, much more commonly than they

have the early edema which is so common in adult cases. Pallor, cyanosis and albuminuria all seem to precede edema in children.

Dr. Logan has shown us that scarlet fever is so often a forerunner of rheumatism in children particularly in cardiac cases. However, I think we sometimes lose track of the ordinary little common cold, whooping cough and particularly measles which have been so frequent throughout the State this year, as much more causative agents of rheumatic heart disease. No matter how mild these diseases are, often they leave a path of complications that is so worthy of consideration.

Pay attention to the teeth first because the ordinary little gum boil around a deciduous tooth is often left uncared for with the idea of allowing the second teeth to erupt in better alignment. This finding seems to me perhaps more commonly the cause of rheumatism than tonsils.

Dr. Gottfried Koehler, Springfield, Ill.: In connection with my work here for two years with the Springfield schools, I am convinced at the present time that the care of the children in the schools with heart disease, in at least this community, is more important than the care of the crippled children. We try to examine the children in the first, fourth and seventh grades in the elementary schools. I dare say that our heart cases run pretty close to one per cent.

I took this matter, of the special care of children afflicted with heart disease, up with the Attorney General of the State last fall. There is a provision in this State for taking care of the crippled children and for taking care of the children with markedly impaired vision. In these cases the State pays the difference in the cost of educating these children in the special school as compared with educating them in the general classes. We had gradually been sending our heart cases to the crippled children's school and the sunshine school. The Attorney General went into the matter very thoroughly and one of his assistants prepared a preliminary opinion to the effect that a heart case was not a crippled child. Mr. Kerner, the Attorney General, was very kind about the matter. He showed me the original opinion, and we had an opportunity to present a brief, with a view to showing that a heart disease case was a crippled case. But he finally ruled that they could not legally be classed as crippled cases. We took this matter up through the Superintendent of Education. I have always regretted that we didn't take it up through the State Health Department.

When we go into the etiology of the cases, we find rheumatic infections manifesting themselves, as Doctor Logan has said, in a majority of the cases. We frequently find this syndrome of tonsil trouble, not necessarily large tonsils, manifesting itself in repeated attacks of tonsillitis with so-called growing pains. In quite a percentage of cases I have found that pneumonia has apparently been a cause; pneumonia in infancy, complicating measles or some of the acute infections, diseases, or just ordinary pneumonia.

We find cases of heart disease in our high school gymnasium. We require a physical examination before there is any participation in athletics. We get a great



many requests from parents to excuse their children from "gym." I dare say that in very few of these do we find heart disease. In our program for next year, we plan to make sure that the child participating in physical education, even in the elementary schools, is examined for heart conditions.

I think in the smaller communities we should work towards classifying these children as crippled children, so that they can be taken care of in the same way that the crippled children are taken care of.

On account of the fact that we haven't had an epidemic of infantile paralysis in this State recently, our crippled children are becoming fewer.

I don't believe it is a good idea to put these children in the same room with crippled children but, as a matter of necessity, it must be done in certain cases, and it probably is the economical way of taking care of these cases in the small communities. That gives these children the transportation that they need, it gives them the rest periods and everything else that is necessary to build up their strength. We have had cases in the schools that couldn't climb the stairs. I remember one child that was being carried upstairs. Yet, these children attempt to attend school.

Therefore, I say that this paper is a timely one and I hope that in Illinois the present law relating to the education of crippled children will be amended so that it will cover heart disease cases.

Dr. John P. Coughlin, Chicago: Dr. Cline said that the cardiac case, the rheumatic cardiac case was the forgotten child.

I would like to make a plea here for another type of child that we don't see very much of, but they die around sixteen or seventeen years of age. That is the older child or the young adult who has left school—and there are a great many of them now—because of economic conditions.

I have noticed that those children who are free from reinfections over a period of four to six years can then have infections and it apparently doesn't seem to disturb them, but if they have a second infection at the end of six months or a year, or two years, invariably they have a lighting up of their endocarditis.

The problem of psychic unbalance that he mentioned is very interesting. I don't believe they have connected up the factor of rheumatic endocarditis with this psychic unbalance. I believe that we should take these young people—girls, especially—when they are twelve or thirteen years of age and sit down and talk to them. If we tell them that they are not going to die, that they will live to be old women, that they will go along as well as anybody else, and explain to them what has happened to their hearts, what can happen for good and what can happen for evil, I think we can straighten out that psychic disturbance. I believe we ought to remove any and every focus of infection that we think can have anything to do with the heart.

Dr. Ray E. Logan, Galena, Ill.: I am grateful to the doctors for their kind expressions. I am very glad you have enjoyed the paper. This paper was written for the very definite purpose of bringing out discussion. It was written with the hope that some thing would be

done for, as the doctors have said, these neglected children; because if there is any class of children who are neglected, it is the cardiacs. I feel this probably more deeply than any one else in cardiac work because I lost my own wife some four or five years ago with a heart lesion which, if she had the proper care when she was fifteen years old, she might have managed to escape the death that did occur. So, you see, I feel very deeply.

Then, I feel very deeply also for the work I do with these children because, if there is anything that gets into your heart, it is working with a group of children in school, and see them leave, and some of them get better. So, I think this work in the schools is very worth while.

As far as the allergic reaction is concerned, doctors, we didn't do any research work on this whatever. We started out to do a five-year study of heart disease but, unfortunately, old man Depression came along and raised the devil with our program, and that is why I am back in the State of Illinois. We did have some definite allergic reaction in the abdomen, but I didn't say anything about some of these symptoms because this subject is so vast that it is practically impossible to cover it all. We had some very definite reactions in the cardiac clinic of Grace hospital, which I was fortunate enough to be associated with. We had a good many school children turned over to our cardiac clinic, and there we had about two very definite allergic reactions in the abdomen which simulated an attack of appendicitis. We didn't, however, do any allergic tests; we didn't do any sedimentation test. We were prepared to do a whole lot of tests but, as I said, the depression came along. We had several cases of adhesive pericarditis in which the chest wall bulged out almost as large as my fist lying upon the chest. In four of these we were lucky enough to be able to get the consent of the parents and did a decompression operation, and three of those children were living a year later. They were very much improved. We didn't rely on any symptoms such as edema of the ankles in our school work. We relied upon loss of weight, fever, lack of energy and probably some attacks of arthritis, although arthritis was a very uncommon finding.

I expected when I said that mitral insufficiency was one of the most common lesions in children that you would say something against that because I do feel that, while a large number of these children show what we call mitral insufficiency, I have a grave doubt that there is such a thing as a definite simple mitral insufficiency. In other words, I believe that mitral stenosis is practically always associated with it.

In the State of Michigan, cardiacs are recognized as cripples and as such given vocational training and we were lucky enough to get some of our children put in vocational training. They were recognized as cardiacs in so much as they were not given any work in the factories there on account of the industrial hazard.

Finally, I want to say one more word about the psychic unbalance. I was glad to have the doctor say something about that, and about the fact that the children at the age of twelve or thirteen have this psychic unbalance. That is a subject all in itself, but there are

several features of this paper that you could talk about and use as a discussion in themselves. That was just a part of the paper. You could take a whole hour on that one thing alone. Psychic unbalance is one of the most unfortunate things we have to contend with. I might tell you many, many things about how children were practically carried upstairs and were not allowed to do this or that; they were made nervous wrecks practically, especially those towards the age of adolescence. And there is only one way to get out of it, gentlemen. When you come across these heart cases, take your youngsters when they get around the age of fourteen, fifteen or sixteen, and sit down and have a good talk with them, and then take the father and mother off in a corner and have a good talk with them too, separate from the child, because as usual, ninety per cent of all the troubles mentally of the child the parents are responsible for.

I certainly want to thank the doctors very much for their interest in the paper.

Dr. Gottfried Koehler, Springfield, Ill.: I recall reading a couple of months ago, I think in the Journal A. M. A., an article on what became of these cardiac cases in the schools. My recollection was that the answer to that question was that over 30 per cent. of them died before they reached the high school. I was rather surprised at that. Is it your information that a large percentage of them die at that early age?

Dr. Ray E. Logan, Galena, Ill.: No. As a matter of fact, we don't know that. Our death rate in the ages between 5 and 16 was only 3.4 per cent. in the three years. If you will look up Stroud's paper in The Journal A. M. A. sometime last year you will find some good statistics on the death rate of heart disease in children. Over a ten-year period it ran about 10 to 12 per cent. As I told you, he said in spite of the care given, it would do that. Here is an interesting fact; initial infection occurs in 78 per cent. of cases between the ages of five and ten years of age. If it strikes at five, you are practically certain, if the child doesn't have a recurrence before the end of four years, and he does have another recurrence after that, it will not injure the heart as if it had come in six months or a year. You will find the literature will tell you the same thing all the way through.

We had two girls, very bright; one was a Negro girl and one a Polish girl. They graduated from the elementary school at the age of sixteen with honors. They went to high school. In their first year in high school both of them, having been kept down very carefully during the elementary grades, where they hadn't the usual love affairs that the average girl has during her regular school period in the regular grades, both of them fell victims to a love affair. Both were married; one was married openly and the other was married secretly. Both of them became pregnant and both those girls died. One died in six months and the other in eight months, which shows that pregnancy at that age with heart disease is much more serious than in the same age without.

So I say that, if the child gets beyond his four year period in school without any reaction, and you can

carry him along during that time, I think his chances of getting along after that are very good.

If I had the power of saying in the State of Illinois when a child should go to school, I would say that the child who had a definite rheumatic infection, who had developed a heart lesion at the age of between five and ten, should not be allowed in school before three or four years after his infection had occurred; and he should be kept under very careful systematically graded exercises, and I believe in that way we can prevent it.

And that brings us to sanitarium care and prolonged convalescent care, and that is the object of this paper largely, in the hope that some seed would be sown to-day that would lead eventually in this big State, when times get good again, that we can have some sanitarium or something in which we can put these neglected children who are certainly as much crippled, or more so, than if they had a leg or an arm off. If I lost a leg, the State might take care of me for life. But if you lose a heart, the State will say, "It's too bad. We can't do anything for you," and they let you go on about your business and allow you to pass on.

Dr. G. W. Haan, Aurora, Ill.: You mentioned this matter of the psychic element. Where do the parents find out that there is any disease? From the doctors, don't they?

Dr. Logan: Yes.

Dr. Haan: The doctor says there is a heart leak, there's an enlarged heart; there's a valve injured. Why should the doctor tell such things as long as the heart is functioning well, as long as it responds well to effort?

MacKenzie, who probably knew as much about heart diseases as most of us do, made the blunt statement that nobody ever died from mitral regurgitation. Then we tell the people that there is a heart leak. The doctors should be more considerate what they say about it and then the psychic element need not to be considered.

Dr. Herrick made the statement that we were calling a great many heart diseases dangerous when they are not dangerous at all. I happen to receive a good many reports of deaths in my capacity as health commissioner, and sometimes more or less I feel that there is not enough study made in writing out a death certificate.

Myocarditis is so easy to say. There is no appeal from it. It settles the question. He is the last fellow that sees the patient. And, myocarditis doesn't need any explanation. I think sometimes it needs a great deal of explanation. Herrick made the statement that we will soon all be cardiophobes if we keep up talking about it and the danger of it. Would you add to your very able discussion the warning to the doctors to be a little more circumspect about what they say?

Dr. Ray E. Logan (closing): I think what the doctor has just said is certainly worth while: surely there is a world of truth in it. A lot of the psychic unbalance of heart disease in all ages is produced by the doctor himself. A doctor hears a murmur. He says, "You have a heart leakage." A doctor in Detroit saw one of his patients going into a bank, and he said, "Are you walking up to the bank?" He then told him, "I told you your heart has a leak, and you are likely to fall



dead any minute." The man actually had a slight roughening of the aorta, due possibly to some mild arteriosclerosis. He had about as much chance of dying of heart disease as I had. He came to me and I explained the whole thing to him, how it was, drew some pictures for him and showed him a diagram of it, and he went about his business and he later told this doctor, "I will be carrying you out feet first."

Here is another thing you all meet with in your practice, since the doctor brought it up. Maybe you have seen it and maybe you have done it. You see an adult or child, and a child especially, who has a cardiac murmur. You don't stop to ask them whether they had rheumatism or not. You don't stop to see whether it is a persistent systolic murmur or not, or whether it is a diastolic. There are all kinds of murmurs you can hear in the heart. We had over six thousand cases; probably made around twenty thousand cardiac examinations, and we were only able to find an average of 471 each year with any suspicion of heart disease at all, and out of that number we had about three hundred and thirty-nine diagnosed as organic rheumatic heart disease. Why? Because the doctors were sending them in with a diagnosis of functional murmurs, and they were telling them that they had an organic heart disease, "a leaky heart." And the minute you tell a patient that he has a leaky heart they are ready to die.

I remember one woman, a high tension, nervous woman. A doctor listened to her heart and told her, "You have a little leakage. I don't think it will do you any damage but don't run around very much." She went home and started to worry about it. So she went to another doctor, and he said, "You go home and go to bed or you will die. You have a terrible lesion." I saw her later. Her home was almost broken up. Her husband was out playing golf at night. I don't know whether they play golf at night, but that's what he told her. They were having a dickens of a time. When she called me over, I asked her to sit up on the bed so I could examine her chest and she said, "I would fall dead because the doctor said so." I asked her to sit on a chair and I practically had to lift her on to the chair. And that was all due to some doctor telling her something that she didn't have, because she didn't have a heart defect at all.

## RIEDEL'S STRUMA

C. H. TEARNAN, M. D.

DECATUR, ILL.

Chronic thyroiditis was first described by Riedel in 1896, but he had one recognized case in 1883. It is considered a rare disease. Payr, in 1927, said there were 70 cases on record. Definite records on the number of cases later than that were not found, but there might be as many as two hundred. I wish to add two cases.

This disease usually occurs between the ages of 30 and 40. Some writers state that it is more common in men, others in women. The majority seem to think it is divided about equally. It apparently is not dependent upon a previous goiter. A typical struma is rapid in growth and pressure symptoms predominate. The disease may last from only a few weeks to six months. Although it is considered inflammatory there is no temperature rise. One or all lobes of the thyroid may be involved. The growth is characterized by extreme hardness,—called iron hardness by Riedel. The size varies and the shape is generally that of the thyroid gland. Grossly the tissue is usually whitish grey, friable and often of striped appearance. The color may be light or reddish brown and yellow.

In 1912 Hashimotos described struma lymphomatosa which Ewing has since classed as an early stage of Riedel's struma. In this type the entire thyroid is not iron hard, but fibrosis is present and perithyroiditis may be found. Grossly such a thyroid is of beefy consistency with fibrous spots. The microscope has followed the progression. There is marked stroma lymphocytic infiltration with later formation of lymphoid follicles. Germ centers may or may not develop. They are composed of lymphoblasts, reticular cells, plasma cells and mitotic figures. As time goes on the whole gland becomes practically a solid mass of lymphoid tissue poor in blood vessels. Connective tissue replaces the cellular infiltration and finally the few remaining acini are surrounded by a solid mass of connective tissue. The lymphoid types are friable while the connective tissue types are tough.

In some cases reported eosinophile cells were dispersed in the connective tissues. The latter occasionally showed hyaline degeneration. On the whole the blood vessels are few and those present show inflammation throughout. Hyaline degeneration and obliteration of the blood vessels has been noted. The inflammation spreads and involves the fasciae and muscles so there is great rigidity. The larynx, trachea, large blood vessels and nerves are involved in the infiltration by connective tissue. Despite the inflammation there is no suppuration. The mass can be moved as a whole, but each lobe cannot be mobilized separately. The carotid pulsations appear to be weaker than normal. Because of the hardness and pressure symptoms the vast majority of

cases have been diagnosed as carcinoma, and microscopic diagnosis of carcinoma has even been made. In carcinoma of the thyroid, the gland is usually nodular while here the enlargement is usually smooth and one is unable to determine a definite boundary. In this struma the overlying skin is intact and the lymph glands are not involved. Dysphagia is far more suggestive of malignancy than thyroiditis. A distinction must also be made between other inflammatory changes; actinomycosis, tuberculosis and syphilis are among them.

Let us assume that Riedel's struma is due to infection and that the source of infection most likely is to be found in the mouth and throat. Streptococci, staphylococci, tubercle bacilli, typhoid bacilli and the spirochaete have all been blamed by various authors. Erkkes and Wegelin observed relations with influenza while Bruengor and Reist attach some importance to overdosing with iodine. I cannot tell you positively which one is or was on the right track or whether there is just reason for considering all these factors. Crane is satisfied that chronic thyroiditis is a distinct disease entity and has no relationship to the inflammation found in exophthalmic goiters, toxic or non-toxic adenomata.

The early cases are frequently without symptoms. One of the early symptoms is dyspnea. Naturally restlessness and apprehension follow. Dyspnea may be an early symptom even in an early case and the growth does not necessarily have to be large. Occasionally there are mild toxic symptoms without exophthalmos or bruit. The basal rate is not high and may be minus. Do not be misled by a high basal in the face of other evidence. Frequently the thyroid is tender with pains radiating up the neck. Sometimes the pains are described as drawing pains. Hoarseness due to recurrent laryngeal involvement and dyspnea from tracheal pressure progressively increase. Roentgenograms should show a compressed trachea in the later stages. Some of the rings may be destroyed.

Operation is indicated to remove the diseased gland and to relieve the grip of the iron claw. The operation is difficult because of the adhesions, immobility, hemorrhage, failure to find lines of cleavage and frequently distortion of the anatomical layout. Pulling on the growth increases the dyspnea. If possible, remove all the diseased tissue. At least remove or sever the

isthmus, and take out wedges from the lateral lobes if they cannot be removed. Crile's muscle decompression might help in a severe case. Tetany may be encountered post-operatively as a clean sweep should be made if possible. Parathormone intramuscularly and calcium intravenously should then be used. The operation should be followed up by deep x-ray therapy. Myxedema will usually be found after operation and x-ray and it will be necessary to supply thyroid extract. All foci of infection found should be cleared up unless that was done pre-operatively. Particularly look after the teeth and nasopharynx.

Cures have been reported even when all of the mass was not removed. How can we tell when we have a cure? How many years must elapse? There are not many cases on record in this country and I wonder just how much follow up has been undertaken and for what period of years. The disease is almost certainly fatal if not cared for. A mortality of 12% was reported in 1932. I believe that covered only the operative deaths. Complete recovery is no doubt possible, but we know of frequent recurrences and would be very slow to give assurance of a cure particularly when recurrence has been recorded twenty years after operation.

Riedel's struma must be considered in every thyroid case where a tumor is present or suspected. The time worn but not outworn plea for earlier diagnosis is made.

I must admit that the first case to be reported here was diagnosed as carcinoma. I have some distinguished company. I console myself a trifle because a short time before I had removed a smooth carcinoma of the thyroid which was very hard and involved all lobes and produced rigidity.

Case 1. Female. Examined April, 1933. Married. Age forty-eight years. Family and past history essentially negative. Had noted thyroid enlargement for about six months. Symptoms were dyspnea, hoarseness, choking. All symptoms had been progressing for three weeks before examination and apprehension was marked. There had been only slight loss of weight. All lobes of the thyroid gland were enlarged, but the left lobe was twice the size of the right. The lobes were smooth and of extreme hardness. Diagnosis of carcinoma was made and operation advised, feeling that we might be able to remove the growth and follow with deep x-ray therapy. At least we could do a decompression and relieve some of the pressure symptoms. Operation, April, 1933. Usual collar incision was made. The anterior muscles were found adherent and the large mass on the left side was adherent. The muscles and fasciae were involved. After some



dissection an attempt was made to get under the mass for ligation. At that point a mass the size of a baseball literally snapped off. Hemorrhage was controlled and as much more tissue as was removed was found rigidly encasing the great vessels. Another smaller mass was noted high in the neck. The ribbon muscles had been split and were not sutured. The removal of the one mass appeared to release the trachea somewhat. The patient made a good recovery so that she was able to get downtown. Two x-ray treatments were given, but more were refused as the dyspnea and choking became worse at that time. Hoarseness increased to brassiness as did the respiration. The voice dropped to a whisper. The struggle for breath was terrific. I have never seen a patient in her right mind who was as panicky as that poor woman. Tracheotomy was performed sixteen days after the first operation. The trachea was found pushed or pulled three fingers breadth to the right and the left jugular was practically in the midline. There was undoubtedly a rapid continuation of the process which was raging before operation or an acute process became engrafted on the old. It is also possible that the phrenics became paralyzed or that the process had become substernal and tracheal collapse occurred below the tracheotomy tube as death came three days after the second operation. Autopsy was refused.

*Microscopic Report:* There are only small foci of recognizable thyroid tissue. Most of the tissue is made up of a great variety of cells, most of them large, sometimes forming giant cells, but always showing transition to fibroblasts. Among these small irregular thyroid alveoli are scattered. There are also abundant lymphocytes and plasma cells. There are a few mitoses, yet there is no definite evidence of malignancy.

*Diagnosis:* Chronic Ligneous Thyroiditis (Riedel's Struma).

Case 2. Female. Examined July, 1933. Unmarried. Age 36 years. Family history essentially negative. Past history: Several operations; tonsillectomy, hysterectomy, appendectomy for ruptured appendix, intestinal obstruction. Present illness: In May, 1933, there was sudden onset of sorethroat, swelling of thyroid, pains in head and mastoid region, weakness, nervousness, irritability and loss of weight. Basal metabolic rate was plus 36. Operation in June at a distant clinic where an operative diagnosis of carcinoma of the thyroid gland was made. The patient stated that all of the gland was removed and the tissue reported not malignant. In July the patient presented masses of iron hardness on both sides, which appeared fixed to the muscles. Hoarseness, tightness, and dyspnea all present. Patient apprehensive the same as Case I. A diagnosis of Riedel's struma was made and re-examination of the tissue microscopically bore out that diagnosis. Very few thyroid alveoli, little or no colloid, follicles with germinal centers, marked increase in connective tissue, and excess of lymphoid tissue sets this case down quite definitely, I believe, as one of Riedel's struma. The patient was already taking thyroid extract and was advised to continue with its use. X-ray therapy was

started the day after examination. In all there were eighteen treatments. By August, 1933, there was a remarkable decrease in the size and hardness of the masses. All pressure symptoms were still present but in much lessened degree. In September the larynx became mobile for the first time and there appeared to be no muscle involvement. The masses were steadily decreasing in size. Basal metabolic rate in October was minus 3. By December there was an apparent cure. Patient started work in February and now reports no return of growth and no symptoms referable to her Riedel's struma.

Millikin Building.

## DISCUSSION

Dr. L. E. Bovik, Waukegan, Ill.: Dr. Tearnan has undoubtedly thoroughly covered the literature on this rare and interesting disease. There is very little to add to what he has said. However, in reviewing the literature myself it seems that the consensus of opinion is that the disease is more prevalent in the female than in the male; that is, probably twice as frequent in the female as in the male.

The symptoms that call for intervention, of course, are the dyspnea and the resulting panicky or nervous condition from this dyspnea. These are the most marked symptoms that the patient presents. Some of these patients have a rise in metabolic rate, although we encounter cases in which the metabolic rate apparently remains normal. This factor of metabolism must be taken into consideration after operation for the removal of this iron hard mass, for not infrequently do we have following it the symptoms of myxedema.

As to whether radiation is useful in these cases, there is a difference of opinion among men who have treated them. I believe the largest group of cases that have been reported by any one man was by Crane, who in 1931 reported twenty-eight cases, and in the study of this group he did not believe radiation of any value.

Very interesting is the fact that cases have been reported in which a very definite diagnosis of ligneous struma was made and in which the patient refused any type of treatment. Some of these cases were followed up, and on return for observation after a period of time, there has been a spontaneous cure evolved.

Riedel's struma is a very interesting pathological condition in the study of the thyroid disease, and on which until just very lately, such a small amount of work has been done. Lately, however, it has been given more attention, and its differential diagnosis has been more clearly established.

It is my belief that with care a differential diagnosis can be made between Riedel's struma and thyroid malignancy. Dr. Tearnan in his paper has covered the essential points of differential diagnosis of thyroid malignancy and this interesting clinical condition of the thyroid very well.

A differential diagnosis is of prime importance to the patient because in malignancy the prognosis is distinctly bad whereas with surgical intervention in Riedel's struma the patient can experience relief and probably a complete cure; at least, the alleviation of all disquieting symptoms.

Dr. Lindon Seed, Chicago: I wish to present my experience with Riedel's struma which differs somewhat from what I have been taught or read. I have operated on six cases of Riedel's struma, of these three had the typical history of Dr. Tearnan's second patient; that is, swelling of the thyroid, tenderness and soreness in the neck, and a slight fever in the afternoon, 99 to 100, which later returned to normal. Of these patients, one woman had a malignant hypertension with nephritis, in addition to the Riedel's struma. No matter what was done she was obviously going to die. We had an excellent opportunity to find out what would happen to a Riedel's struma. I did a biopsy on the right lobe, the left lobe was exactly of the same appearance as the right lobe and was left alone. She died three months later, at which time I obtained the left lobe at the autopsy. Strange to relate a microscopic section of the left side showed much less fibrosis and lymphocytic infiltration and many more thyroid follicles. Apparently, with the passage of time there was a marked tendency to spontaneous recovery.

In view of this experience, in the next four cases I saw I advised no treatment whatever. Two of them were nurses and one of them was a doctor, all have been followed for one to three years with a complete spontaneous recovery. I lost track of the fourth case. A month ago I operated on another patient in whom the disease had affected only one lobe. The physician thought it was a carcinoma, and there was some justification for this opinion. It was a typical Riedel's struma. We removed a very small piece of the gland, the symptoms entirely disappeared, and the patient became well. In most instances it does not require removal of a very large piece to remove the soreness, tenderness, and the progressive enlargement.

Although it is the common opinion that all Riedel's struma should be operated on, I have made up my mind, that unless the condition is producing symptoms of obstruction, as in Dr. Tearnan's patients, I would leave it alone.

Dr. Tearnan (in closing): As to the first case, I want to say the diagnosis, had we not thought it was carcinoma, would probably have been easier. I want to emphasize the presence of the iron hardness. I don't think you will ever experience anything in the thyroid as hard as that. Another thing, in carcinoma of the thyroid, you usually find nodules. Our experience with Riedel's struma at least has been that the mass is smooth; it isn't nodular like it is in carcinoma or the adenomatous type of goiter.

The second case was one that had been operated on elsewhere some time previous to coming to see us. A diagnosis of malignancy had been made. She presented herself there with symptoms of dyspnea and the iron hardness in the thyroid region. We made the diagnosis of Riedel's struma and asked for a recheck on the slides. The recheck diagnosis was Riedel's struma. This patient was put on x-ray treatment and, in all fairness to Dr. Bovik, who discussed the paper, we felt that the x-ray in that case was the one thing that saved her life, because up to that time she was losing ground. Whispering voice and choking were pres-

ent. She had all of the pressure symptoms. After only a few x-ray treatments she made quite a remarkable advance and, at the end of four or five months was perfectly well and able to return to work.

It may be possible that in some of these cases, just as Dr. Seed said, unless they have pressure symptoms, they will get well spontaneously. However, we would not feel secure as yet in making a positive diagnosis of Riedel's struma in early cases without operation and microscopic diagnosis. Other diseases of the thyroid can closely resemble a Riedel's struma, and may be the ones that cure spontaneously. In the types where you have a large mass that is shoving the trachea off to one side, you might say in almost an S-curve, where there is a lot of pressure, where the vessels and nerves are involved, as in the first case, we feel that they should be operated upon, and then give a course of x-ray treatment afterwards.

This disease is rather rare and, as time goes on, we may have to change our views.

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### BILATERAL EMPYEMA COMPLICATING BILATERAL LOBAR PNEUMONIA IN THE LAST TRIMESTER OF PREGNANCY

NATHAN FLAXMAN, M. D., AND  
RAYMOND FELDMAN, M. D.

CHICAGO

This case is reported because a thorough search of the literature has failed to reveal a single similar case report. It is known that bilateral pneumonia is not common, bilateral empyema is still more rare, and such a combination occurring in

From the Surgical Service of Dr. Harry Jackson, Cook County, Hospital, Chicago.



pregnancy is probably very rare. Cases such as this have no doubt occurred but have not been reported. Therefore, we believe this to be the first reported case, and especially interesting is that the patient appears to be on the road to recovery.

#### CASE REPORT

No. 1327787: A white female, M. S., aged 18 years, was brought to the examining room of the Cook County Hospital on December 8, 1932, with a note from Dr. Frederick A. Lofton who stated the patient has "pneumonia and pregnancy." She was admitted to the obstetrical service of Dr. Louis Rudolph, where she gave a history of a seven month pregnancy. The previous day she had had a chill followed by pain in the chest later in the day; and the coughing up of reddish brown material at night. The chest pain started in the left upper anterior portion and later became generalized over the entire chest.

In the past she had had measles, mumps, chickenpox, whooping cough and diphtheria as a child. Her menses started at the age of twelve years, were of three days duration, with a twenty-eight day interval. Her last menstrual period had ended April 2, 1932. This was her first pregnancy.

On examination she appeared acutely ill, orthopneic, with cyanosis of the lips and finger-tips, and constantly groaned as she held her hands to ease the pain in her left chest. Her temperature was 98° F, pulse 124, and respiration 36 per minute. The blood pressure was 114/80. The pharynx was markedly reddened. Her breasts were engorged. The borders of the heart were R H B 3 cm, and L H B 8 cm. The cardiac tones were soft and weak, and the rate was regular. There was impaired resonance with numerous moist crepitant rales over the right lower lobe posteriorly. Over the left lower lobe there was impaired resonance, bronchial breathing and bronchophony posteriorly. The abdomen revealed the fundus of the uterus 22 cm. above the symphysis pubis. The fetus was in the R O P position, and increased fetal movements were noted. The F H T was 160 per minute counted in the right lower abdominal quadrant. Dr. H. F. Oakes made the diagnosis of a bilateral lower lobe pneumonia with a normal seven month pregnancy, which was confirmed by Dr. Helen Button. The patient was given glucose intravenously, fluids, and morphine for rest.

*Labor:* The following day the temperature was 102°, pulse 140 and respiration 54. At 4 A. M. patient began to have labor pains. Her general condition appeared improved. Labor proceeded uneventfully until 10:45 A. M., when she spontaneously delivered a still-born premature infant. Her condition became very serious following the delivery and she was placed in an oxygen tent.

*Course:* For three days she remained in the oxygen tent and with relief of the severe anoxemia, her condition improved somewhat. On December 12, 1932, she had consolidation of the entire right lower lobe.

On December 14, 1932, she became irrational and remained so for the next four days. She also developed

a papular erythema which became generalized over the entire body. Her temperature stayed at 102°. Pulse varied from 96 to 130, and respirations between 30 and 40 for the next few days.

On December 26, 1932, when she appeared to be doing very well her temperature went up to 103°, pulse increased to 140 and respiration to 40. She had a dry, hacking cough, and examination of the chest revealed flatness and diminution of breath sounds over the right lower chest. The left lower chest showed impaired resonance, bronchial breathing and coarse rales. A thoracentesis was performed on the right chest and thick purulent material was obtained. She was transferred to the surgical service of Dr. Harry Jackson on December 28, 1933.

*Laboratory:* On December 8, 1932, the day of admission the W B C was 4,100 with 78% polys. The following day the W B C was 7,100 with 88% polys. On December 12, 1932, the W B C was 15,100 with 85% polys.

X-ray of the chest on December 27, 1933, revealed bilateral occlusion of the lower two-thirds of each lung field.

*Surgical Course:* The left chest was aspirated on December 29, 1932, and this also revealed thick purulent material. Culture of this material gave a mixed growth of hemolyzing streptococci and staphylococcus albus. Both chests were then aspirated alternately for the next six days. She was scheduled for a rib resection on January 6, 1933, but her condition became very grave. Closed drainage was therefore instituted in the left chest, using the trocar method. After withdrawal of 400 cc. of pus, her condition improved.

Drainage continued well until January 9, 1933, when the tube in the left chest slipped out. Her breathing was much impaired and anoxemia became very evident. Another tube was re-inserted and she was again placed in an oxygen tent. She remained twenty-four hours in the tent. Her condition improved considerably so that on January 13, 1933, a closed drainage was also instituted in the right chest.

For the next three days nothing unusual happened. On January 16, 1933, the left tube again slipped out of place; also, the right tube became clogged and stopped functioning. Her respiratory rate rapidly increased and marked cyanosis became very evident. Bilateral closed drainage was therefore re-instituted and about 400 cc. of pus was withdrawn from both pleural cavities. Then everything again went well for a few days.

On January 20, 1933, she became completely disoriented due to a marked psychosis. In this state she pulled both tubes out of her chest and both had to be re-inserted. Fluoroscopy, after the psychosis subsided, revealed fluid in the left chest to the level of the 3rd rib with air also present, and a fluid level at the 8th rib on the right side. Her condition gradually improved as both pleural cavities drained freely until January 26, 1933. At that time it was noted that she had multiple abscesses in the right thigh and right arm. Within the following few days about ten abscesses were incised and drained over the thighs, arms, and lumbar region. With drainage from all the abscesses and both pleural

cavities, her condition became very slowly a little better.

In the entire month of February, it was necessary to re-insert the closed drainage tubes three times on the left side and twice on the right side. In addition other abscesses were incised in the lumbar region, the arms and legs, about eight in all. At the end of the month, just when there appeared to be some improvement, she developed another complication that was the worst one of the entire group. All of her large joints, the shoulders, elbows, wrists, hips, knees and ankles became red, tender, very painful and swollen. This\* brought on the pressure sores on the back as she could be moved only with great pain.

On March 6, 1933, a bilateral footdrop with complete paralysis of both lower extremities, for no obvious reason but the cachexia, was noted. In this desperate condition the patient appeared to be gradually going downhill. On March 20, 1933, when her condition was as low as it possibly could be, she insisted that she felt fine and must be allowed to go home. This was taken up with the family and her mother removed her from the hospital by ambulance on March 28, 1933. At discharge, her condition was very poor. She was very emaciated, drained from about ten different places where the abscesses had been incised; she had a paralysis of both lower extremities, and multiple pressure areas on the back.

*Subsequent Course:* The patient was entirely dismissed from our minds until one day one of us (N. F.) received a call to see this patient. She was seen on October 22, 1933, at her home and again on December 3. Her condition had improved considerably. All of the abscesses had ceased draining, the pressure areas had cleared up; only the bilateral foot-drop was still present. There was a small sinus draining in the right chest, but otherwise nothing else. Although the patient is far from recovery, she appeared very much better than when she left the hospital. This was undoubtedly due to her mother's excellent care.

#### SUMMARY

A case of bilateral empyema complicating a bilateral lobar pneumonia in the last trimester of pregnancy is reported for the first time. In addition she had a pyemia with multiple abscess formation, an infectious polyarthrits, and a bilateral foot-drop. After a spontaneous delivery her condition was always poor. Bilateral closed drainage was instituted and multiple abscesses were incised. For several days she had a marked psychosis. When her condition was very poor her mother took her home to care for her. When last seen on December 3, 1933, the patient was an invalid, but appeared to have a good chance for recovery.

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## GOLDSODIUMTHIOSULPHATE IN THE TREATMENT OF PULMONARY TUBERCULOSIS

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Based upon experimental observations tending to show that the clinical use of gold derivatives produced an inhibitory effect on the growth of tubercle bacilli and appeared to manifest a certain attraction for tuberculous tissue, clinicians have from time to time centered their efforts upon the use of this metal in the treatment of pulmonary and other forms of tuberculosis.

From the time of Robert Koch and his experimental work with gold cyanide in 1890 until Moellgard's striking reports, the many attempts at the therapeutic application of various gold salts in tuberculosis met with an unfavorable response, chiefly as a result of the dangerous reactions which followed their use. Moellgard's favorable reports on the experimental and clinical use of Sanocrysin revived interest in the possibilities of gold therapy. The severe reactions occurring in connection with the dosage he suggested served to demonstrate, however, that the remedy was not devoid of the objectionable qualities of previously recommended gold preparations. The tendency to discard Moellgard's salt based upon the failure to duplicate his results experimentally was in a measure prevented by many optimistic reports of its use clinically.

Following a study of the available literature upon the subject the administration of gold-sodiumthiosulphate was decided upon in a series of sanatorium patients.

*Dosage.* No definite agreement exists with regard to the dosage of goldsodiumthiosulphate. Danish clinicians recommend massive doses; an initial dose of 250 to 500 mg. and this amount increased until 1500 mg. is administered at a dose. Numerous case reports testify to brilliant results following the use of such radical dosage. More recent reports, however, indicate the advisability of conservatism in relation to dosage. An initial dose of 25 to 50 mg. progressively in-



creased according to the patient's tolerance constitutes the safest plan of treatment.

The chemical is given intravenously dissolved in from 10 to 20 c.c. of sterile distilled water. A total of 6 to 8 grams is advised over a period of from twelve to fifteen weeks.

In our series of cases we commenced with a minimum dose of from 10 to 40 mg., increasing the amount given by 10 mg. at weekly intervals until the patient developed an unfavorable reaction. This was regarded as the "reaction point." The next dose was lowered to the amount tolerated and following one or two such doses in the absence of unfavorable manifestations the "reaction point" dose was again given. If the reaction did not recur the dosage was increased by 10 mg. every week until a maximum of 250 mg. was reached. A total of fifteen maximum doses were administered at weekly intervals. In a few subsequent cases the initial dose was 50 mg. and succeeding doses were increased by 50 mg. Patients unable to tolerate 250 mg. were given their greatest tolerance dose at intervals of one week.

The patient should be confined to bed for at least twenty-four hours following the intravenous injection.

*Types of patients treated.* Cases selected for treatment included for the most part far advanced types with positive sputum, whose pulmonary involvement did not permit of the application of collapse therapy or in whom collapse therapy failed to produce the desired result.

The presence of the following conditions were considered as contraindications in the administration of goldsodiumthiosulphate:

1. Albuminuria; hematuria; pyuria.
2. Hypertension; arteriosclerosis.
3. Hypertrophic emphysema with cyanosis.
4. Gastrointestinal complications.
5. Amyloidosis; diabetes mellitus.

#### CASE REPORTS

Case 1. E. V. Aged 29 years. Onset with pleurisy in 1924; admitted to sanatorium, December 21, 1928. Lung findings on admission; fibrocaseous tuberculosis both upper lobes; cavitation right upper lobe; no serious complications. Temperature 98.6 to 100.2; pulse 88 to 112; weight 90 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Treatment started January 10, 1931, with initial dose of 10 mg. Lung findings on January 10, 1931; small areas of cavitation both upper lobes; many moist rales both upper lobes. Temperature 98.6 to 100; pulse 100 to 132; weight 93 lbs. Sputum positive. Diagnosis;

Pulmonary tuberculosis, far advanced B.

Reactions during treatment; 30 mg. fourth dose caused albuminuria; 30 mg. eighth dose, diarrhea; 60 mg. twelfth dose, erythema; No further reactions until 190 mg. which produced a blotchy erythema. 250 mg. the second dose in this amount followed by albuminuria. 250 mg. given September 17 followed by headache, dizziness, vomiting and heavy albuminuria which persisted until December 16, 1931.

Clinical observations, January, 1932; Temperature lower; pulse slower; constitutional symptoms improved. During September and October, 1931, the maximum afternoon temperature was 99.0 and pulse 80. Lung findings remain practically unchanged. Sputum always positive. Weight 101¾ lbs.

Case 2. S. N. Aged 26 years. Onset following an acute respiratory infection in 1924; admitted to sanatorium on September 10, 1927. Lung findings on admission; moist rales upper lobe of right lung; moist rales lower lobe left lung; artificial pneumothorax for a short period prior to his admission; phrenicexeresis right side, June, 1929. Temperature 98.6 to 99.0; pulse 74 to 90; weight 139 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis far advanced B.

Treatment started, January 10, with initial dose of 10 mg. Lung findings on January 10, 1931; Relaxation right lung about 40% result of phrenic operation; moist rales throughout the right lung; moist rales scattered throughout left lung; slight cyanosis; Temperature 98.6 to 99.2; pulse 84 to 110; weight 159; Sputum positive. Diagnosis; Pulmonary tuberculosis far advanced B.

Reactions during treatment; 160 mg. caused dizziness; 230 mg. produced a slight erythema; 250 mg. given once a week for twelve weeks with no reaction; 250 mg. the 15th dose was followed by chills, fever, vomiting and severe prostration. Treatment discontinued, October 15, 1931.

Clinical observations November, 1931; Temperature 98.4 to 99.8; pulse 80 to 90; symptoms unchanged. Lung findings the same as on January 10. Sputum positive; weight 160 lbs.

Case 3. B. L. Aged 36 years. Onset insidious, 1918; admitted May 12, 1929. Lung findings on admission; right spontaneous pneumothorax; fluid removed and pneumothorax maintained for a brief period then discontinued owing to progressive adhesion formation; right phrenicectomy, May 1930; few moist rales left apex. Temperature 98.0 to 100.4; pulse 90 to 96; weight 90 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis far advanced B.

Treatment commenced February 26, 1931, with dose of 30 mg. Lung findings on this date; right hydro-pneumothorax; moist rales left apex. Temperature 97.6 to 100.8; pulse 80 to 96; weight 95 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Reactions during treatment; 70 mg. followed by severe headache and malaise; 100 mg. caused stomatitis; 250 mg. sixth dose in this amount produced nausea, vomiting and dizziness; 200 mg. given a week later re-

sulted in a severe constitutional reaction; treatment discontinued November 15, 1931.

Clinical observations November and December, 1931: Temperature normal; pulse 84 to 90; condition appears improved. Lung findings essentially the same. Sputum positive; weight 99 lbs.

Case 4. S. B. Aged 40 years. Onset with chronic cough in 1929; admitted July 31, 1930. Lung findings on admission; moist rales upper lobes both lungs; x-ray shows a small cavity in the right apex. Temperature 98.6 to 99.8; pulse 80 to 86; weight 102 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis far advanced B.

Treatment started on March 15, 1931 with dose of 40 mg. Lung findings on this date the same as when she was admitted. Temperature 98.6 to 100.8; pulse 78 to 84; weight 119 lbs.; sputum positive. Diagnosis; Pulmonary tuberculosis far advanced B.

Reactions during treatment; 160 mg. first reaction produced burning sensation in the throat of two days duration; 250 mg. on September 17, the fifth dose in this amount caused albuminuria which was still marked on October 29; treatment was stopped.

Clinical observations November 1931; Maximum temperature 99.8; maximum pulse 92; clinically improved. Lung findings; decreased moisture right upper lobe. Sputum positive; weight 131 lbs.

Case 5. A. S. Aged 36 years. Onset with hemoptysis in 1930; admitted to the sanatorium March 29, 1931. Lung findings on admission; moist rales both upper lobes; cavity left apex; dry pleurisy over left lower lobe. Temperature 97.0 to 98.6; pulse 70 to 86; weight 152 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis far advanced A.

Treatment commenced August 7, 1931, with dose of 25 mg. Lung findings on this date the same as upon admission. Temperature 98.6; pulse 74 to 100; weight 163 lbs. Sputum negative; positive until April 12, 1931. Diagnosis; Pulmonary tuberculosis, far advanced A.

Reactions during treatment; 250 mg. fifth dose in this amount caused severe headache, nausea, vomiting, diarrhea and prostration. Treatment discontinued.

Clinical observations December, 1931; Temperature normal; pulse normal; weight 162. Pulmonary findings remain unchanged; sputum negative. General condition improved; coughs less; expectorates less.

Case 6. S. S. Aged 24 years. Onset after acute respiratory infection in 1923; admitted March 5, 1930. Lung findings on admission; moist rales with signs of cavitation upper lobe of the left lung; tuberculosis infiltration right apex. Temperature 100 to 103; pulse 100 to 110; weight 172 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, moderately advanced C.

Treatment commenced January 10, 1931 with dose of 10 mg. Lung findings on the above date; left hydropneumothorax complicating therapeutic pneumothorax given on September 10, 1930 for severe hemoptysis; few moist rales right apex and upper lobe. Temperature 100.2 to 103; pulse 100 to 128; weight 146 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced C.

Reactions during treatment; 70 mg. caused mild albuminuria; 240 mg. produced "sores" in the mouth; 250 mg. followed by stomatitis; injections stopped for three weeks; 250 mg. the seventeenth dose in this amount with no reaction on December 2, 1931.

Clinical observations December, 1931; Maximum fever 100; maximum pulse 124; weight 164 lbs. Left lung expanded; no fluid; no cavitation; pneumothorax discontinued because of adhesion formation; few moist rales right apex. Sputum positive. June 1, 1932; sputum negative since March 1932; weight 184 lbs.; maximum temperature 100; maximum pulse 110; condition improved.

Case 7. I. B. Aged 40 years. Onset with gastrointestinal symptoms in 1919; admitted September 18, 1930. Lung findings on admission; fibroclerative tuberculosis involving the upper two thirds of the right lung and upper half of the left lung; cavitation right apex. Temperature 97 to 99; pulse 90 to 104; weight 155 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Treatment started January 10, 1931 with initial dose of 10 mg. Lung findings on this date practically the same as upon admission; cough a troublesome symptom. Temperature 98 to 99; pulse 76 to 90; weight 175 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Reactions during treatment; none. 250 mg. administered on June 18, 1931; patient went home.

Clinical observations, June 20, 1931; Temperature normal past month; pulse 70 to 90; weight 182 lbs. Lung findings unchanged; sputum positive; "feels better"; cough improved.

Case 8. A. C. Aged 20 years. Onset with cough and blood streaked sputum in October, 1929; Admitted June 9, 1930. Lung findings on admission; moist rales left upper lobe with signs of cavitation; bronchovesicular breath sounds right upper lobe with moist rales after cough. Temperature 98.6 to 99.6; pulse 80 to 90; weight 137 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Treatment commenced August 27, 1931; initial dose 50 mg. Lung findings on this date practically the same as upon admission. Temperature 98.6 to 100; pulse 76 to 100; weight 150 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Reactions during treatment; 250 mg. the third dose in this amount followed by a severe reaction; further treatment refused, October 21, 1931.

Clinical observations November, 1931; Temperature normal; pulse 80 to 96; weight 147 lbs. Lung findings unchanged; sputum positive.

Case 9. H. S. Aged 45 years. Onset catarrhal in 1925; admitted July 17, 1930. Lung findings on admission; moist rales with signs of cavitation upper lobe of the right lung; moist rales upper lobe left lung. Temperature 97 to 100; pulse 92 to 100; weight 115 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Treatment commenced on January 10, 1931; initial dose 10 mg. Lung findings on this date, essentially the



same as on admission. Temperature 98.6 to 100; pulse 96 to 110; weight 115 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Reactions during treatment; 80 mg.; nausea; abdominal distress; 100 mg. followed by severe gastrointestinal upset; 110 mg. injected one month later produced a marked unfavorable reaction; further treatment discontinued April 15, 1931.

Clinical observation May, 1931. Pulmonary involvement rapidly progressive. General condition bad.

Case 10. R. S. Aged 40 years. Insidious onset, 1926; admitted July 23, 1930. Lung findings on admission; fibrocaceous tuberculosis upper half of left lung and upper third of right lung; small cavities upper lobes. Temperature 98 to 100.6; pulse 88 to 100; weight 104 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Treatment commenced January 10, 1931; initial dose 10 mg. Lung findings on this date same as on admission. Temperature 98.6 to 100.6; pulse 80 to 106; weight 108 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Reactions during treatment; No reaction until 200 mg. which was followed by nausea and vomiting. Treatment discontinued with maximum dose of 220 mg. on June 3, 1931 because of severity of reactions.

Clinical observations; during April, 1931, maximum pulse rate was 96; maximum temperature 99.4; weight 113 lbs.; in May she developed an acute exacerbation with a maximum temperature of 103. Following this the trend of her progress was unfavorable. Sputum positive at all times.

Case 11. A. H. Onset with hemoptysis in 1924; admitted May 17, 1929. Lung findings on admission; hydropneumothorax left chest complicating artificial pneumothorax which was maintained until December, 1929; small cavity right upper lobe. Temperature to 100.4; pulse to 124; weight 104 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Treatment commenced on January 10, 1931, with 10 mg. Lung findings on this date; large cavity left upper lobe; thickened pleura over left lower lobe; moist rales upper third right lung; small cavity right apex. Temperature 97.8 to 98.6; pulse 80 to 90; weight 110. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Reactions during treatment; 20 mg. caused diarrhea; 30 mg. produced a transient albuminuria; 80 mg. followed by erythema; 90 mg. the fourteenth dose, no reaction; 120 mg. given on May 7, 1931, resulted in a severe reaction with an exacerbation of his cough and bloody expectoration. Further treatment refused.

Clinical observations; during May, 1931, his temperature ranged from 97.8 to 99.8; pulse 88 to 116; weight 119 lbs. Clinical findings indicative of improvement in right lung; rales much less numerous; left lung the same; thoracoplasty left side; patient succumbed.

Case 12. J. S. Aged 28 years. Onset with cough and hoarseness July, 1927; admitted June 26, 1929. Lung findings on admission; fibrocaceous involvement upper two thirds of both lungs; asthmatic bronchitis; tubercu-

losis laryngitis. Temperature 98.6; pulse 80 to 94; weight 167 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Treatment commenced January 10, 1931; initial dose 10 mg. Lung findings on this date the same as on admission. Temperature, pulse and weight the same as on admission. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Reactions during treatment; 20 mg. followed by albuminuria; no further reactions; 250 mg. the eighteenth dose in this amount administered on December 2, 1931.

Clinical observations December, 1931; Local and constitutional findings remain unchanged. Temperature and pulse the same; weight 173 lbs. Sputum positive. February 10, 1932; developed bronchopneumonia; died three days later.

Case 13. H. D. Aged 15 years. Onset with catarrhal symptoms April, 1929; tuberculosis contact; admitted June 10, 1929. Lung findings on admission; extensive involvement right lung; large cavity right upper lobe; fine moist rales left axillary region. Temperature 98.6 to 100.4; pulse 84 to 100; weight 86 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced B.

Treatment commenced February 26, 1931; initial dose 10 mg. Lung findings on this date the same as on admission; artificial pneumothorax tried right side with no success owing to adhesions. Temperature 97 to 98.6; pulse 96 to 104; weight 105 lbs. Sputum positive. Diagnosis; Pulmonary tuberculosis, far advanced A.

Reactions during treatment; none; 100 mg. injected on May 6, 1931, was the last dose given on account of the patient's unfavorable progress.

Clinical observations May, 1931; Temperature to 99.4; pulse to 100; weight 103 lbs. X-ray reveals three areas of cavitation in the left lung. Sputum positive.

*Summary of cases presented.* The cases discussed are representative of the types of patients treated and afford an insight into the problems involved in the administration of the salt and the evaluation of its effect on the clinical course of the disease. The difficulty in evaluating the therapeutic response to any form of chemotherapy in the light of the remissions and exacerbations of the average case of pulmonary tuberculosis is at once apparent. The tendency to ascribe the favorable phase of the clinical cycle of the disease to a remedy administered coincident with this period should not be overlooked. With regard for these considerations we have endeavored to summarize the salient points relating to our observations.

*Toxic Reactions.* Toxic reactions of goldsodiumthiosulphate may be mild, moderate or severe. They have been grouped as follows: Skin; erythematous patches; generalized erythema. Mucous membrane; superficial ulcerations of the

## SUMMARY OF CASES TREATED

Case	Period Treated	Total Grams of "Gold"	Temp.	Pulse	Weight	Sympt.	Physical Findings	X-ray	Sputum	Remarks
	1-10-31 to						No definite change		Remains positive	Symptoms improved
1.	9-17-31 to 1-10-31	3.5	Impr.	Impr.	Plus 8 lbs.	Impr.		Same		
2.	10-15-31 to 2-26-31	6.5	Not impr.	Impr.	Plus 1 lb.	No change	No change	Same	Remains positive	Gained 20 lbs. before treatment
3.	11-15-31 to 3-15-31	3.4	Impr.	Impr.	Plus 4 lbs.	Impr.	No change	Same	Remains positive	Symptoms improved
4.	10-29-31 to 8-7-31	2.8	Impr.	Same	Plus 12 lbs.	Impr.	Impr.	Not impr.	Remains positive	Gained 17 lbs. before treatment
5.	11-27-31 to 1-10-31	2.3	Always Normal	Same	Same	Impr.	Same	Same	Remains negative	Gained 11 lbs. before treatment
6.	12-2-31 to 1-10-31	5.0	Impr.	Same	Plus 38 lbs.	Impr.	Impr.	Impr.	Remains positive	Lost 26 lbs. before treatment
7.	6-18-31 to 8-27-31	3.0	Impr.	Same	Plus 7 lbs.	Impr.	Same	Same	Remains positive	Gained 19 lbs. before treatment
8.	10-21-31 to 1-10-31	1.2	Impr.	Impr.	Lost 3 lbs.	Impr.	Same	Same	Remains positive	Gained 13 lbs. before treatment
9.	4-15-31 to 1-10-31	.63	Not impr.	Not impr.	Loss in weight	Worse	Worse	Worse	Remains positive	Gained 18 lbs. before treatment
10.	6-3-31 to 1-10-31	2.4	Impr.	Impr.	Plus 5 lbs.	Same	Same	Same	Remains positive	Acute exacerbation during treatment
11.	5-7-31 to 1-10-31	.65	Not impr.	Not impr.	Plus 9 lbs.	Impr.	Impr.	Impr.	Remains positive	Succumbed to thoracoplasty
12.	12-2-31 to 2-26-31	7.1	Always normal	Same	Plus 7 lbs.	Same	Same	Same	Remains positive	Died of broncho-pneumonia 2-10-32
13.	5-6-31 to	.42	Worse	Same	Lost 2 lbs.	Not impr.	Worse	Worse	Remains positive	Gained 18 lbs. before treatment

mouth; stomatitis. Gastrointestinal; anorexia; nausea; vomiting; diarrhea. Fever. Shock.

The toxic manifestations are apparently due to metallic poisoning. Mild reactions are usually transitory and of minor clinical consequence. In most patients a progressive increase in tolerance can be established. Many patients who developed mild or moderate reactions with minimal doses failed to show any signs of toxicity with increased dosage. The occurrence of a slight rise in temperature, a transient gastrointestinal upset, a few erythematous patches on the skin or a few superficial ulcerations on the mucous membrane of the mouth may not require a decrease in dosage. Generalized erythema, prolonged or severe alimentary disorders, persistent albuminuria, high fever or signs of shock call for extreme caution in the administration of the salt. Treatment should be discontinued until the unfavor-

able symptoms subside and subsequent amounts of the remedy given materially reduced. In some cases it may be advisable to stop the treatment entirely.

*Comment.* An analysis of our clinical observations must in a measure be rather speculative in nature. The following deductions with reference to the effect of the salt upon the clinical condition of the patients reported are worthy of mention.

The remedy appeared to have no influence upon the presence of tubercle bacilli in the sputum. Positive cases remained positive. The only exception to this observation was Case 6 whose sputum became negative about three months after the injections were discontinued.

Physical and x-ray findings were not definitely influenced in seven patients. Some improvement incident and subsequent to treatment was appar-



ent in three cases. Unfavorable progress of the pulmonary involvement was noted in three instances.

Symptomatic improvement, at times striking, was observed in eight patients under treatment. In two cases no definite symptomatic change was evident. In three patients the clinical course was decidedly unfavorable. Two of the latter were extremely intolerant to the salt.

*Conclusions.* Based on the clinical observations in our series of cases one may be justified in the assumption that goldsodiumthiosulphate has failed to definitely prove its therapeutic efficiency in the treatment of pulmonary tuberculosis. The favorable response in some of the patients, however, would seem to indicate that the remedy is not entirely devoid of therapeutic merit and that its cautious administration is perhaps worthy of consideration in selected cases.

## TREATMENT OF UTERINE FIBROIDS

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Treatment of fibroids of the uterus at the Michael Reese Hospital has undergone a definite change during the past eleven years. During this period which ended January 1, 1934, 1,001 private and service patients were treated.

A survey of the types of treatment used in this series of 1,001 patients shows that supravaginal hysterectomy was performed 663 times, vaginal hysterectomy 79 times, and total hysterectomy 49 times. 137 patients were treated by myomectomy; 15 of these were by the vaginal route and the other 122 by laparotomy. The remaining 73 patients were treated by radium.

A study of the frequency (66.3%) with which supravaginal hysterectomy was used throughout this eleven year period shows that this operation is the method of choice in the treatment of uterine fibroids. Furthermore, the frequency of its use remained constant. Supravaginal hysterectomy is the simplest and the most rapid of the various major operations. This procedure should be practically bloodless; there is no risk of bladder injury if the vesical reflexion of the peri-

toneum is carefully stripped off the anterior surface of the uterus; neither is there danger of ureteral involvement except in the occasional patient in whom the fibroid is either intraligamentary or aberrant.

With the abdomen opened it is possible to inspect and palpate the tubes and ovaries, and to perform such surgical procedures as are indicated by the pathology found. Likewise the general abdominal cavity may be explored, and appendectomy may be performed.

This procedure removes the tumor-bearing corpus uteri, thus obviating the recurrence of fibroids. It leaves the cervix intact and is the operation of choice when the cervix is healthy or amenable to treatment. The advantages of leaving the cervix in situ are first that the cervix serves as an anchorage for the vaginal vault and second that the endocervix provides the necessary vaginal moisture, thus preventing dyspareunia.

In hysterectomy of any type vaginal preparation is as essential as abdominal. Ethylene oxygen anesthesia has proven entirely safe and satisfactory and is used routinely. Ether is added only occasionally at the moment of opening the abdomen and, if necessary, for beginning closure. The clamp method of removal and the ligation method each have their advocates. There is no outstanding advantage to either technique except that in removal of markedly eccentric and large fibroids ligation sometimes facilitates the procedure.

The presence of the cervical stump which is cut across in supravaginal hysterectomy has been blamed for much of the morbidity in this operation. To obviate the potential infection from the endocervix, coning out, cauterization, carbolicization and iodination have all been used. After experience with each of these procedures it has been found equally safe to omit all of them, resorting only to a transverse wedge shaped resection of the supravaginal portion of the uterus. Suture closure of the cervix is the first step following removal of the tumor bearing corpus, after which there is no further risk of contamination. Each uterine artery should be ligated separately.

It is desirable to implant the cut ends of the round ligaments together with the suspensory ligaments of the ovaries into the lateral margins

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of the cervical stump. Thereafter the vesical peritoneum is utilized for complete peritonealization.

#### TREND IN TYPES OF TREATMENT

	Total	1923	1933
Myomectomy .....	12.2	21.9	7.6
Vaginal myomectomy .....	1.5	....	....
Supra vaginal hysterectomy .....	66.3	56.2	57.6
Total hysterectomy .....	4.9	1.4	14.6
Vaginal hysterectomy .....	7.9	5.5	18.1
Radium .....	7.3	15.0	2.1

The incidence of total hysterectomy for the entire series was 4.9%. However, this operation was performed 10 times as frequently in 1933 (14.6%) as in 1923 (1.4%). It is indicated whenever the cervix requires removal and whenever vaginal hysterectomy is contraindicated. Total hysterectomy requires a most accurate knowledge of normal and abnormal pelvic anatomy; the possibility of injury of ureters and bladder is greater than in supravaginal hysterectomy. For this reason total hysterectomy demands a higher degree of operative skill. When all these conditions are fulfilled, the morbidity and mortality should be no higher than that following supravaginal hysterectomy.

Those who recommend total hysterectomy as a routine procedure do so on the basis that carcinoma of the cervical stump is a real menace. It is of interest to note that such a carcinoma is not known to have developed during this eleven year period. In this operation the first step should be suture closure of the cervix vaginally to obviate the risk of peritoneal contamination from the cervix when the latter is withdrawn through the abdominal incision. The Richardson technique has proven most satisfactory among the various methods recommended for total hysterectomy. It is quick, safe and comparatively bloodless. The vaginal vault is closed without drainage and the round ligaments and the uterosacral ligaments are attached to it. If median approximation of the round ligaments causes too much tension one or both should be peritonized in situ, otherwise these patients complain of pain in the groins which persists until the round ligaments pull out of their artificial attachments.

Vaginal hysterectomy was performed in 7.9% of the entire series. This operation also shows a marked increase in frequency during this period. In 1923 the incidence was 5.5% and by 1933 it had jumped to 18.1%. This operation has many distinct advantages which in competent hands should make it the operation of second choice.

The abdominal cavity is scarcely invaded, nevertheless the adnexae may be inspected and removed if necessary, the diseased cervix is removed and cystocele or rectocele or both can be corrected at the same time without undue prolongation of the operation and in the same operative field. The convalescence should be simple and uncomplicated provided there is careful asepsis and hemostasis. There is practically no trauma to peritoneum or bowel. This results in a definitely lowered incidence of shock, ileus and peritonitis.

Vaginal hysterectomy should be employed only in those instances in which the tumor is not too large to be removed intact. Morcellation or bisection of the uterus may be used in those tumors which are too large to be delivered intact through the vaginal canal but these two procedures should be avoided if possible because of the increased risk from trauma or infection. It is preferable to remove larger tumors by the abdominal route. Vaginal hysterectomy is also contraindicated when the uterus is fixed, when there is parametrial infiltration, when there is palpable adnexal pathology or when there have been previous pelvic abdominal operations.

In this operation, as in abdominal types of hysterectomy, either the clamp method or the ligation method may be used. The ligation method is simple with a freely movable uterus and a roomy vagina. The clamp method is safer if the broad ligament attachments and fundal attachments of the uterus are not readily accessible. The clamp method should be done stepwise, each bite of the clamp being ligated in turn.

The fundal attachments are sometimes more easily approached by turning the corpus backward into the posterior peritoneal opening via the cul-de-sac. The prolapse of abdominal content into the vaginal vault can be prevented by a temporary pack or by lowering the head of the table. Closure without drainage is routine. In closure the broad ligaments are approximated and sometimes imbricated. Their upper margins, together with the round ligaments, are attached to the sub-pubic ligaments to forestall herniation of the bladder.

Myomectomy is primarily the operation of choice in those women who choose to maintain their fecundity. It is also indicated for simple pedunculated tumors, single infected tumors,



aberrant fibroids and for similar types of fibroids in association with pregnancy. Vaginal myomectomy (1.5% in this series) may be used for cervical fibroids and for submucous fibroids. It is of special value in the latter type when they have been expelled from the uterine cavity.

It is ill advised to combine a vaginal myomectomy and an abdominal hysterectomy. The attachments of the vaginal fibroid may be infected or sloughing. The ligated stump should be given not less than six weeks to heal before the abdominal operation is performed.

Abdominal myomectomy was performed in 129 (12.2%) of the entire series; 81 of these women were under 35 years of age. The incidence of this operation in 1923 was 21.9%. This decreased to 7.6% in 1933 because of the increased morbidity and mortality due chiefly to postoperative infection.

Radium was employed in the remaining 7.3% of the patients. The decrease in the use of radium from 15.0% in 1923 to 2.1% in 1933 is explainable by the many contraindications to the use of radium in the treatment of uterine fibroids together with the comparatively high percentage of failure following its use. The generally accepted contraindications to radium are:

1. *Size.* Radium is contraindicated for fibroids larger than the size of a 12-14 week pregnancy.
2. *Position.* Subserous or pedunculated submucous fibroids.
3. Tumors producing pressure or pain symptoms.
4. Tumors undergoing degeneration or infection.
5. Rapidly growing tumors.
6. Tumors associated with inflammatory pelvic disease, postoperative adhesions or other new growths such as endometriosis.
7. Stenosis of the cervix.
8. Severe bleeding or marked anemia.
9. Pregnancy.
10. Retrodisplacement.
11. *Age.* The severity of the symptoms of the post radiation menopause is in direct relation to the prematurity of the induced menopause. Thirty-five years was the original arbitrary age limit under which radium was contraindicated. General experience has raised this level to 40 years. In this series 24.3% of women were still menstruating at age 46. For this reason it seems desirable to consider radium, if at all, only in the fifth decade and as close to the expected menopause as can be determined.
12. It is further to be noted that radium is contraindicated after the menopause is established.
13. Radiophobia.

Even though the use of radium is the safest procedure it should not receive primary consid-

eration in the treatment of fibroids because of the high incidence of failure (11.11% in this series). It also has certain other definite disadvantages; chief among these is the inability to inspect and palpate the pelvic and abdominal organs.

The total mortality in this series was 0.7% (seven deaths). The causes of death were pulmonary embolism twice, cerebral embolism once, peritonitis three times (two streptococcus and one Welch bacillus) and intestinal obstruction once. Of these 7 patients 5 had supravaginal hysterectomies and 2 myomectomies, a mortality for myomectomy of 1.64% while by contrast the mortality among 791 patients in whom every type of hysterectomy was done was only 0.63%.

The noteworthy postoperative complications which occurred in this series are listed below.

#### POST-OPERATIVE COMPLICATIONS

	Morbidity	Mortality
Wound infections .....	19	(2)
Peritonitis .....	1	3
Eviscerations .....	6	1
Wound resuture—No infection .....	2	..
Intestinal obstruction .....	2	(1)
Thrombophlebitis .....	14	(1)
Embolism .....	..	3
Febrile 10+ days .....	7	..
Pneumonia .....	6	..
Shock .....	5	..
Cardiac .....	4	..
Hemorrhage .....	2	..
Psychosis .....	2	..
Ant. tibial paralysis .....	1	..
Recto-vaginal fistula .....	1	..
Total .....	72—7.2%	7 deaths—0.7%

It should be noted that carcinoma of the body of the uterus was found four times (0.4%) and sarcoma five times (0.5%), an incidence of malignancy of only 0.9%.

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#### DISCUSSION

Dr. Edwin J. DeCosta, Chicago: Several interesting and correlated problems have been analyzed in the examination of the case records of these 1000 patients. Perhaps the most interesting is that associated with the question of the etiology of fibroids.

Although the true histogenesis of fibroids is not known it is generally accepted from the work of Meyer and Becher that uterine fibroids do not arise from embryonic rests, nor metaplasia, nor from the walls of blood vessels, but rather from an abnormal growth of hitherto normal myometrium. Fibroids possess certain attributes that are lacking in most other neoplasms. For example, they usually occur during the child-bearing years and may retrogress after natural or artificial cessation of ovarian function. Thus it has not seemed

unreasonable to assume that secretion of the ovaries is intimately associated with myomagenesis.

The present tendency in the search for the origin of fibroids seeks the cause in some dysfunction of those hormones that regulate the growth and physiology of the pelvic organs. There is a glaring discrepancy in this theory. During puberty and gestation, peaks in hormonal activity, there is no increase in myoma formation. Likewise fibroids that derive their nourishment from other sources than the uterine blood vessels, as through vascular adhesions, may continue to grow after the menopause. Witherspoon, and Witherspoon and Butler have recently demonstrated what appeared to them to be a clearcut interrelation between the presence of ovarian follicle cysts, hyperplasia of the endometrium and fibromyoma. Their interpretation is as follows: 1. Follicular cyst formation produces a hyperestrinism; 2. the unopposed action of estrin in the absence of the corpus luteum secretion produces a hyperplasia of the endometrium, and 3. this same action of estrin on the myometrium, if sufficiently prolonged, results in fibromyomatous growths. Concerning the origin of the follicle cysts; in white women a general glandular upset, with special emphasis on the anterior pituitary influence, is considered most important, while in colored women a disturbed blood supply resulting from chronic pelvic inflammation leads to follicle cysts.

Analysis of adnexal pathology occurring in association with fibroids in this series does not substantiate the conclusion of Witherspoon. For instance, follicle cyst formation, the primary basis of this theory, was observed in only 244 patients, 26.1 per cent while corpora lutea were noted 129 times, 13.7 per cent. The presence of the latter theoretically would interfere with the action of estrin and thereby prevent fibroid formation. Hyperplasia of the endometrium and polypoid growths occurred in 177 patients, and it is of particular interest, that only 34.4 per cent of these presented follicle cysts. Of 72 patients in whom the endometrium was considered normal, 38.9 per cent had follicle cysts. Concerning evidence of pelvic inflammation, salpingitis occurred in 19.9 per cent, while Witherspoon's observations reach 97.6 per cent.

## ABNORMALITIES IN THE POSITION AND FORM OF THE VERMIFORM APPENDIX

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The frequency of appendicitis and the large number of surgical operations performed for this condition make it essential that both physicians and surgeons be acquainted with congenital anomalies in number, position, location and form of the vermiform appendix.

In 1906, I reported upon the gross abnormalities of the appendix discovered in 3,550 autopsies

performed in the Cook County Hospital, Chicago, between 1893 and 1905, and the reader is referred to that paper for a number of interesting conditions discovered many of which were of pathological origin. In the present paper, I am surveying the more recent general literature in regard to a few of the more commonly reported anomalies which, although in no sense of frequent occurrence, yet may happen to occur in any particular case and therefore should be borne in mind by practitioners.

*Development of the Processus Vermiformis.* Embryologically, the vermiform appendix is merely the terminal portion of the cecal pouch. From the developmental standpoint, there may be a number of anomalies: The cecum itself may fail to develop in which case, of course, the appendix would also be congenitally absent; there may be a rudimentary cecum without the appendix; the cecum, including the appendix, may develop in an abnormal position in the peritoneal cavity but be otherwise normal; there may be full development of the cecal part of the general cecal pouch but failure or only a rudiment of the appendicular part; finally, there may be normal development of the cecum and its appendicular part but failure of differentiation between the true cecal sac and the appendix. In addition, as we shall see, the appendix is occasionally duplicated, the so-called "double" appendix and, more frequently, there is the "giant" appendix which may result from a congenital malformation or from a pathological condition occurring *in utero* or after birth.

Differentiation between the cecum proper and the appendix appears to take place in two stages. A primary stage is stated to occur early in embryonal life when a distinction can be made between a larger proximal portion of the general cecal pouch, the cecum proper, and a smaller distal portion, the future appendix. The second stage occurs about the time of birth when the distinction between the portions becomes quite clearly marked.

Normally, the appendix is found free in the right iliac fossa and is about 6 to 12 cm. in length, the average being about 8 cm. Its normal situation is on the posteromedian aspect of the cecum with the tip pointing downward.

*Anomalies in Position of the Appendix.* Wakely made careful observations on the position of the



appendix in more than 5,000 cases as seen in the operating, post-mortem and dissecting rooms. Omitting the influence of inflammation and neoplastic disease in altering the normal position of the appendix, he gives the following general statistical values:

In 5,000 Cases	
Position of the Appendix	Per Cent.
1. Anterior or pre-ileal .....	0.94
2. Splenic or post-ileal .....	0.5
3. Pelvic, on psoas muscle, near or hanging over the brim of the pelvis .....	32.11
4. Sub-cecal, beneath the caput ceci .....	2.02
5. Post-cecal and retrocolic .....	64.38
6. Ectopic positions .....	0.04

In the first position, the tip of the appendix is directed upward and forward over the terminal part of the ileum. In the second position, the appendix lies in the ileocecal fossa under cover of the terminal part of the ileum. The tip of the appendix in the third position is usually directed downward on the psoas muscle. In the sub-cecal position, the appendix with its mesentery is usually twisted in a clockwise direction from left to right and its tip is usually directed upward.

Wakely thinks that the high percentage of retrocolic positions is in accordance with the general experience of surgeons and anatomists but differs markedly from the statistics published by previous writers and from those given in text-books. The retrocecal type of appendix may be found: (a) free in a post-cecal or retrocolic pouch of peritoneum; (b) held in contact with the cecum or ascending colon by a short mesentery; (c) adherent to the cecum or colon which with the appendix forms the anterior wall of a retrocolic pouch of peritoneum; (d) behind the cecum and ascending colon and partly or entirely extraperitoneal.

When one is unable to locate the appendix in the usual way, the posterior surface of the cecum should be explored to see if the appendix is retrocecal. Spivak. A freely movable terminal part of the ileum does not necessarily mean that there is not a retrocecal appendix, but a terminal part of the ileum bound down by peritoneal folds to the psoas muscle does suggest a retrocecal appendix.

In regard to Wakely's figures for retrocolic positions, different authors and text books give percentages varying from 18 to 38 for retrocecal appendix. Operative statistics are usually double the anatomic statistics, but in the former, it should be remembered that pathological condi-

tions in the vicinity may play an important role.

An appendix located in any of the atypical positions mentioned, may give rise to a wrong diagnosis; particularly in the case of women, an ovaritis or salpingitis may be thought of when the appendiceal pain is not localized in the usual site. As McKinnon mentions, inability to correctly locate the position of the appendix is responsible for the still high mortality of appendicitis whether operated on or not.

*Absence of the Appendix.* Congenital absence of the appendix—sometimes it is an agenesis rather than a true absence. It has been noted in museum specimens, at the autopsy table, at the dissecting table and at operation. Kelly and Hurdon in their text-book say: "Cases of complete absence of the appendix have been described but it is to be doubted that such observations have always been accurate. Nevertheless there are a few authentic cases." In my report of 1906, previously mentioned, in which the findings in 3,550 autopsies were referred to, there was not one case of congenital absence of the appendix noted.

Bradley states that in 8,102 cases of examinations in the autopsy or dissecting room in which the presence or absence of the appendix was noted, only 2 showed congenital absence. Thus, as a clinical entity, congenital absence of the appendix, has owing to its rarity very little significance. The first reference to the subject is traced to Morgagni in 1719. It was reported by Wm. Hunter in 1762, by V. Haller in 1765, and several apparently authentic cases have been reported since.

Dorland and Bradley and Spivack have presented good analytical statistical studies on this subject in 1925, 1929 and 1931 respectively. Dorland collected 37 cases from the literature which he regarded as authentic cases of agenesis of the appendix; Bradley added 4 more but states that some of the earlier cases included in Dorland's list are not accepted by some critics as authentic. Spivack, including 2 personal cases, increased the number of reported cases to 44. Of these, nine were discovered at the autopsy table, 6 on the dissecting table, 4 are museum specimens and the others were found at operation. Spivack considers that some of the cases are not true agenesis or congenital but rather cases of hypoplasia and expresses the opinion that the cases of true agen-

esia or congenital absence of the appendix scarcely amount to one-half. In many cases, a very careful examination will reveal some vestige of the organ either as a very slight papular elevation externally or as a hollow depression corresponding to the orifice of the appendix on the mucosal side.

Jacobs, in 1928, reported a case of laparotomy which disclosed a bicornuate uterus with one cervix and an elongated cecum with no adhesions and without any trace of an appendix or meso-appendix.

It is quite evident that a complete and thorough autopsical or dissecting room report is necessary in order to establish a case of true absence of the appendix. The mere fact that at operation an appendix was not found, even following a more or less extensive search, does not establish an authentic case. Such for instance, is the case reported by Maurer in which it is stated that an operation was undertaken on a diagnosis of appendicitis but no appendix was found. In Marie's case, the cecum presented no trace of an ileocecal appendix. The malformation was congenital.

*Duplication of the Appendix.* Like absence of the appendix, its duplication, the so-called "double" appendix, is an anatomical rarity. Most text-books either do not mention this anomaly or else say that the reported cases are not authenticated. Double appendix is so infrequently seen that it presents very little practical interest.

In my report on 3,550 autopsies in which peculiarities of the appendix were particularly noted, there was no case of duplication. Many surgeons of wide-reputed experience have never seen a human cecum with two appendices. One must be most careful not to mistake a Meckel's diverticulum or other formation for a supernumerary appendix. Young, in 1911, operated on a case of double appendicitis; the two appendices contained pus, one was ruptured. These two appendices, each had a separate mesoappendix, had their bases about three centimeters apart of each other. In 1929, Braatz reported the case of a young woman who in 1909 had had her appendix removed for appendicitis; 10 months later, similar symptoms appeared and at a second operation, another true appendix pathologically affected was found in the vicinity of the usual site in the cecum. It was histologically verified as regards structure. There was no doubt that an

appendix had also been removed at the first operation. Elwyn reported a case of forked appendix, there was a normal limb from the right cecal sacculation, another limb from the left; the two branches being fused at the distal end. In Goldschmidt's case, the appendix was also removed at operation. Between the site of the appendix and the ileal inlet, and fixed in the anterior wall of the cecum, a nut-sized structure covered with omentum and with a mesentery was found. Histological examination showed that both the appendix and the removed structure were exactly the same in their elements, i. e., two appendices and both gave rise to appendical attacks in the patient. In 1931, Walthard reported the finding of a double appendix associated with an umbilical fistula. A duplicate appendix was present in the umbilical protusion. Both appendices arose from a common base and the author suggests it may have been a case of an appendix bent double upon itself. Lettau, in 1903, had reported an almost exactly similar case. In 1932, Berthold reported a case in a woman 60 years old in whom operation disclosed 2 appendices. One was 7 cm. and the other 5 cm. long; the first was in its normal site and the second about 2 to 3 cm. lateral to it. Both were histologically verified as appendices. Recently Clavel and Colson report a case of double appendix discovered in the course of a laparotomy. On opening the abdomen, the appendix was found to be retrocecal; a second appendix was found about 1 cm. distant from the first, in a double-barreled gun position. The second was located internally to the first. The two appendices were about the same length and each had an independent cecal implantation. The authors mention a similar case seen by Routier except that the two appendices were united at the distal end. Pratt reports a case of double appendix associated with imperforate anus and other congenital anomalies found at autopsy in an infant 11 hours old. Each appendix had its own mesenteric attachment and the two were on opposite sides of what apparently was the cecum. Rasmussen has reported a case of double appendix associated with bicornuate uterus.

*Giant Appendix.* The so-called giant appendix may be due to massive hypertrophy of the organ but it is more usually a cystic dilatation. In a general way, an enormous appendix may result from inflammation, infection, cecal distension or



from a malignant tumor. Infection need not necessarily be present.

Virchow was the first to describe a large cystic appendix, in 1863, under the name of pseudomucinous cyst. Haimant and Mathieu reporting in 1923, estimated at about 183, the number of cases of giant appendix to be found in the literature. This included 3 cases personally observed by them. The condition is found most frequently between the ages of 20 and 30 years. It is due, apparently, in most cases, to the retention of products of secretion. These cysts may rupture, may become infected, may undergo malignant neoplastic change.

The largest cystic appendix reported was removed by Neumann at operation upon a man aged 69 years. The cyst was the size of an adult's head. Kelly reported a case in a woman of 60 who came to the hospital to be treated for metrorrhagia; she had never had any digestive trouble nor the least abdominal painful crisis; she was operated upon for fibroid uterus and in the course of the operation the appendix shaped like a banana was found to be 30 cm. in length and 15 cm. in circumference. An appendectomy and a hysterectomy were performed. The patient recovered. Fargue, Mourgue-Molines and Lapeyre report a case in which the appendix after removal measured 13 cm. in length and 12 cm. in circumference. In its original state in the body, it was vastly distended and its walls were thin and transparent. Larget and Lamare reported a case of cystic appendix 10 cm. long and 4 to 5 cm. thick which had given no symptoms. It was a surprise finding during an abdominal operation.

The contents of these cysts may vary; sometimes being gelatinous and sometimes mucoid or pseudo-myxomatous, which gives rise to the so-called appendicular mucocele; sometimes the contents are clearly fluid, either aqueous or serous—the hydro-appendix. The cause is usually some degenerative process or a cellular hyper-secretion. Several authors have associated hydro-appendix with a localized tuberculosis.

In the case reported by Newell, Campbell and Frere the removed appendix weighed one pound six ounces. Its diameter where it came off from the cecum was five centimeters. The condition apparently resulted from a chronic inflammation; part of the removed mass was fibrous. Matassov

reported a case of fatal ileus from strangulation of intestine by an appendix 13 cm. long.

*Ectopic Appendix.* A word should be said about the rare condition of ectopic appendix, not secondary to some pathological process. In Wakely's 5,000 appendicular examinations, in only 2 was the appendix found ectopic. In one, it was prehepatic while in the other it was found lying free with the cecum below the stomach and transverse colon. In Hickman's case, the appendix was in a diverticulum rather low in the right inguinal fossa. Buisson's case of subhepatic ceco-appendicular ectopia was diagnosed roentgenologically and similarly in the case of ectopia reported by Santoro. In Keaton's case, the cecum and the appendix were on the left side, with the ascending colon running parallel to the transverse colon. Appendix has been found in the left side of the abdominal cavity, it has been found in right sided and in left sided inguinal hernial sacs, and also in umbilical hernial sacs. Abnormal position, angulation, fixation, constriction, and abnormal location of the appendix, secondary to pathological anatomic changes are as common as congenital anomalies of position and location are rare.

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### THE HIPPOCRATIC OATH

I swear by Apollo the physician and Aesculapius and health and all healing and all the gods and goddesses that according to my ability and judgment I will keep this oath and this stipulation. To reckon him who taught me this art equally dear to me as my parents, to share my substance with him and relieve his necessities if required. To look upon his offspring in the same footing as my own brothers and to teach them this art if they shall wish to learn it without fee or stipulation; and that by precept, lecture and every other mode of instruction I will impart a knowledge of the art to my own sons and those of my teachers and to disciples bound by a stipulation and oath according to the law of medicine but to none others. I will follow that system of regimen which according to my ability and judgment I consider for the benefit of my patients and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to any one if asked nor suggest any such counsel and in like manner I will not give a woman a pessary to produce abortion. With purity and with holiness I will pass my life and practice my art. I will not cut persons laboring under the stone, but will leave this to be done by men who are practitioners of this work. Into whatsoever houses I enter I will go into them for the benefit of the sick and will abstain from every voluntary act of mischief and corruption and further from the seduction of males or females, of freemen or slaves. Whatever in connection with my professional practice or not in connection with it I see or hear in the life of men which ought not to be spoken of abroad I will not divulge, as reckoning that all should be kept secret. While I continue to keep this oath unviolated may it be granted to me to enjoy life and the practice of the art, respected by all men in all times; but should I trespass and violate this oath may the reverse be my lot.

### MADE NO DIFFERENCE

"Is your son improving his opportunities in college?"

"Yes; he's just as tough on \$1,000 a year as the millionaire's son in the next room who spends \$5,000."

### ALPHA-DINITROPHENOL AND DINITRO-O-CRESOL, AS STIMULATORS OF METABOLISM

Actions and uses of dinitrophenol. Promising metabolic applications. W. C. Cuttings, H. G. Mehrrens and M. L. Tainter (Division of Neuropsychiatry and the Department of Pharmacology, Stanford University School of Medicine, San Francisco, California), *J. A. M. A.* 161:193-195 (July 15, 1933) No. 3.

Alpha-dinitrophenol is a yellow crystalline solid, slightly soluble in water, more soluble in alcohol or ether. Solutions may be made up to 3% in water by heating with the addition of one-half the weight of sodium bicarbonate. Dinitrophenol causes an increase in metabolism within one minute after injection into experimental animals, or somewhat more slowly when given gastrically. With doses of 10 mg./kg. or less, the increase in metabolism is about 50%, with larger doses, metabolism may be increased fourfold or more, until the animal produces heat so fast that it may be killed by the resulting fever. Return of metabolism to normal levels may require 6-48 hours, depending on the dose and the route of administration. The increase in metabolism is due to a direct stimulation of cellular metabolism and is not accompanied by an increase in muscular activity, nor by important changes in the circulatory system unless asphyxia results from inadequate oxygenation of the blood, when there may be acceleration of the pulse and rise of blood pressure. There is a marked increase in respiration; the respiratory quotient decreases. Thyroid and suprarenal glands are not indispensable to the metabolic response, since their removal does not interfere with the drug's actions. In diabetic dogs, dinitrophenol has a greatly increased toxicity. Repeated administrations of the drug for from 2-3 months to dogs in doses just short of the fatal, have not resulted in significant injury to important organs, as shown by studies of the urine, icteric index, van den Bergh test, organs at autopsy and tissues microscopically. In 8 human cases, single doses of 3-5 mg./kg. body weight orally increased the basal metabolic rate from 20-30% in the first hour and maintained it at that level for about 24 hours, when it gradually fell, reaching normal levels on the third day. None of the patients experienced or showed signs of nervousness, anxiety, trembling, hunger or palpitation. Given orally or subcutaneously these doses caused no changes in temperature, respiration or pulse rate after 2 months of daily administration. Single doses from 5-10 mg./kg. caused no change in temperature, pulse or respiration, but caused the patients to sweat copiously. Three administrations of single doses of more than 10 mg./kg. gave increases in temperature of three degrees C., or more, in respiration of 15-30 per minute, and of pulse 20-30 per minute all commensurate with the pyrexia. The latter doses are too dangerous for routine use. Daily oral doses of 3-5 mg./kg. were given to 9 patients for from 1-10 weeks. In 6 of these patients, the metabolism was determined repeatedly and found to be maintained at an average of 40% above the initial level. After discontinuance of the drug the rate fell to normal on the third or fourth day. All 9 patients lost body weight



without dietary restrictions: the maximum total loss in any patient was 9 kg. (20 pounds) in 10 weeks. The greatest rate of loss was 1.7 kg. (3-7/10 pounds) a week after a daily dose of 3 mg./kg. The average loss for the entire group was 0.9 kg. (2 pounds) a week; the patients did not suffer from deleterious symptoms as the result of this reducing treatment. The authors point out that there are limitations to and possible dangers from the use of the drug clinically and urge that dinitrophenol be administered under strictly controlled conditions since: (1) the drug was not in these experiments administered continuously for periods longer than three months and not at all to patients with serious disease; (2) the drug manifests increased toxicity in diabetic dogs; (3) excessive doses may cause a fatal hyperpyrexia; and (4) there may exist a possible idiosyncrasy to the drug. Further study is proposed in the treatment of obesity, hypothyroidism and similar depressed metabolic states.

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Alpha-dinitrophenol; preliminary report of the Council on Pharmacy and Chemistry of the American Medical Association, J. A. M. A. 101:210 (July 15, 1933) No. 3.

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Dinitro-o-cresol as a stimulator of metabolism. E. C. Dodds and W. J. Pope, (Courtauld Institute of Biochemistry, Middlesex Hospital, and the Department of Chemistry, University of Cambridge.) Lancet 2:352-353 (August 12, 1933) No. 7.

It would appear from experimental results that dinitro-o-cresol is more suitable for clinical use than alpha-dinitrophenol as a stimulator of metabolism. It produces the same effects as the dinitrophenol in about  $\frac{1}{2}$  the amount; toxicity studies indicate that the two compounds are of the same order, and both are active when administered by mouth. The compounds were compared on guinea pigs, using a modification of the Krogh technique.

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Toxicity of alpha-dinitrophenol. Report of a case. H. H. Anderson, A. C. Reed and G. A. Emerson. (Laboratory of A. C. Reed and the Pharmacological Laboratory, University of California Medical School), J. A. M. A. 101:1053-1055 (September 30, 1933) No. 14.

Alpha-dinitrophenol was administered to 14 patients for the treatment of obesity. Thirteen of the cases, treated with about 3 mg./kg. daily of the drug for periods up to two months, did not suffer appreciable ill effects. The average weight loss for the first month of therapy was 2.3 kg., and for the second month, 2.1 kg. The diet was limited to foods low in sugar and fat. In the fourteenth patient a case of "qualitative idiosyncrasy" was encountered, with extremely toxic manifestations. This patient had suffered, previous to the administration of alpha-dinitrophenol, from arthritis of the chronic hypertrophic type, and should not have been given the drug, as it is known that individuals with chronic rheumatism, alcoholism, tuberculosis and renal and hepatic disease have a lessened resistance to the agent. It is suggested that Derrien's test (described in

detail) be used in determining the presence of alpha-dinitrophenol in the urine of patients under treatment as a means of detecting intolerance to the drug, although in the case of allergy the test of course is of no value. Ninety fasting normal rats were injected intraperitoneally with 10-50 mg./kg. in a single dose. A chart is given showing the lethal range for the drug in the group of animals studied. Fifty per cent of the animals died with 40 mg./kg. and all rats given 50 mg./kg. died immediately after the height of the pyrexia, which occurred within the first hour. No gross evidence of edema or other tissue damage was observed in any animal. Literature on the toxicity of alpha-dinitrophenol is reviewed. The authors urge that the dosage in humans be strictly and conservatively controlled, as it has not yet been demonstrated that the administration of the drug is without danger.

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Miscellaneous actions of dinitrophenol: Repeated administrations, antidotes, fatal doses, antiseptic tests and actions of some isomers. M. L. Tainter and W. C. Cutting (Department of Pharmacology and the Division of Neuropsychiatry of the Department of Medicine, Stanford University School of Medicine, San Francisco, California), J. Pharmacol. 49:187-208 (October, 1933) No. 2; through J. A. M. A. 102:405 (1933) No. 5.

Tainter and Cutting observed that repeated administration, by different routes, of alpha-dinitrophenol (1-2-4) to dogs at intervals of three or more days does not result in tolerance within a period of from two to three months. Studies of the urine, van der Bergh tests and icteric indexes all failed to reveal any evidence of a toxic action during such administrations. There were no significant pathologic alterations in the important organs, aside from some possible injury to the spleen. The fatal doses per kilogram for 50 per cent mortality were: rats, 25 mg. subcutaneously; dogs 22 mg. subcutaneously, 20 mg. intramuscularly, 30 mg. intravenously and between 20 and 30 mg. orally; rabbits, 30 mg. subcutaneously, and pigeons, 7 mg. intramuscularly. Excised intestinal strips from rabbits showed response to dinitrophenol in high concentrations only, which depressed the muscle directly. Dinitrophenol may increase the rate and depth of respiration in rabbits previously depressed by toxic doses of morphine, chloral, alcohol or barbitol, as does caffeine. The animals may still die, in spite of maintenance of adequate pulmonary ventilation. When the full respiratory stimulation of dinitrophenol has developed, morphine promptly reduces it to normal. Dinitrophenol was not successful in preventing death from just fatal doses of sodium barbitol. Arterenal, sodium gluconate, dextrose and insulin, monoiodoacetic acid, quinine and salicylate were found ineffective antidotes in rats. The administration of physiologic solution of sodium chloride or cooling by means of tepid baths exerted a partial antidotal (antipyretic and antimortal) effect. Dinitrophenol failed to prevent death from sodium cyanide in pigeons under conditions in which methylene blue is effective and is of no permanent value as an antidote in cyanide poisoning. No antiseptic action was found against *Bacillus coli* or

streptococci in vitro, or against trypanosomiasis in rats. Alpha-dinitrophenol (1-2-4) is more effective in producing fever in pigeons, as far as degree of fever and regularity of response are concerned, than are metamonitrophenol and paramonitrophenol, betadinitrophenol or gammadinitrophenol or trinitrophenol. The authors state that these results, taken together with those of their previous reports, establish the basis for the use of dinitrophenol in physiologic and pharmacologic experimentation for increasing metabolism and body temperature. They also indicate the possibility of applying this drug in the treatment of various clinical conditions in which an increase in the basal metabolism, or a fever, might be of benefit. Properly conducted clinical tests are imperative before any clinical applications could be considered.

**Toxicity of dinitrophenol.** Henry H. Haft (Syracuse, New York), letter to the editor, *J. A. M. A.* 101:1171-1172 (October 7, 1933) No. 15. A case is reported of a University professor, who although well aware of the possible toxic effects of dinitrophenol, insisted on treatment with the drug for obesity. His weight was 263 pounds (119 kg.); age 39, height 6 feet. He was given 3 mg./kg. of body weight daily in capsule form, and reported daily for examination. For three days no untoward effects were noticed; on the fourth day he complained of a feeling of heat, perspired profusely, complained of pain in the buttocks and down the legs, felt fatigued, and had an uncomfortable feeling in the abdomen. Examination revealed injected conjunctiva, with a definite icteric tint to the eyeballs; beads of perspiration were on his forehead; his pulse rate had increased from 60 to 90; blood pressure was lowered from 125 systolic to 112 systolic; his abdomen was sensitive, particularly over the liver; urine showed a trace of sugar and bile. He stopped the use of the drug, and four days later he felt well again. The icterus had disappeared; the pulse rate was normal; there was no more excessive sweating; and the pain in the buttocks and abdomen had disappeared.

A death from alpha-dinitrophenol poisoning. J. C. Geiger (San Francisco, California), letter to the editor, *J. A. M. A.* 101:1333 (October 21, 1933) No. 17.

A death is reported resulting from 2.5-5 gm. dinitrophenol. The drug was taken at 11:50 A. M. At 4 P. M. the patient experienced a feeling of apprehension; he became more restless and uneasy, and at 6 o'clock was admitted to the hospital. Restlessness and apprehension increased, with progressive rise in temperature, frequency of pulse rate and respiration, accompanied by profuse perspiration. The temperature rose to 105.4°F. The pulse on admission had been 84; at 9:30 it registered 146 beats a minute. The patient lapsed into delirium and coma at 9:45 and died at 10 o'clock. The rectal temperature at that time was 110°F. plus. Within twenty minutes his body was in boardlike heat rigor.

**Use of dinitrophenol in obesity and related conditions.** A progress report. M. L. Tainter, A. B. Stockton and W. C. Cutting (Departments of Pharmacology and

Medicine, Stanford University School of Medicine, San Francisco, California), *J. A. M. A.* 101:1472-1475 (November 4, 1933) No. 19.

Results obtained in the treatment of 113 unselected patients (15 males) for obesity (average initial weight 188½ pounds) with dinitrophenol or its sodium salt are reported. Capsules containing 100 mg. of the Na salt or 75 mg. dinitrophenol were used; the two forms are therapeutically indistinguishable. One or two capsules were given daily with meals; after a week's interval the dosage was increased until 2-3 pounds of weight loss were produced weekly. No restriction of the diet was made. Patients were examined at intervals of 1-3 weeks. The average length of treatment was 40 days; the longest, 125 days. The average loss of weight was 8½ pounds, which with the average duration of treatment of 40 days would give a rate loss of 1½ pounds weekly. It was found that for an average weight loss of 2-3 pounds weekly, 2-9 capsules per patients, or 1.5 capsules for 100 pounds of initial body weight were needed. Data and results obtained in individual cases are given. Of the 113 patients, 7 were lost track of; 19 terminated the treatment for reasons not associated with the drug; 23 were dismissed with treatment completed; 52 were still under treatment; 9 had unpleasant reactions; 3 were uncomplicated failures of the drug. 23.9% of the patients complained of perspiration or a sensation of warmth; 5.3% complained of feeling tired; 3 thought that their nervousness increased; 4 had attacks of dizziness; 3 had gastro-intestinal upsets of brief duration; 6 experienced an alteration of taste sensation; 7% had skin rash with intense itching; in none were there respiratory or circulatory symptoms; hypertension and albuminuria associated with obesity were improved; no evidence of liver damage was found. Results indicate that sufficient dinitrophenol can be used therapeutically to reduce the weight of obese patients 2-3 pounds weekly over extended periods without serious discomfort.

**The clinical applications of dinitro-o-cresol.** E. C. Dodds and J. D. Robertson (Courtauld Institute of Biochemistry, Middlesex Hospital, London), *Lancet* 2:1137-1139 (November 18, 1933) No. 21.

Studies on the therapeutic dose of dinitro-o-cresol were made. It was found that a safe dose that will cause a definite increase in basal metabolic rate would appear to lie between 50 and 100 mg. per day for a normal person, or 0.5-1.0 mg./kg. body weight. Under no circumstance should the compound be administered in such quantities as to raise the basal metabolic rate above +50, as grave discomfort and damage will result. Neither the pulse rate nor the blood pressure are of any value in assessing the basal metabolic rate, since the characteristic action of dinitro-o-cresol is an increase in metabolism without a proportionate stimulation of the cardio-vascular system. It is possible by the careful use of the compound to maintain the metabolic rate at 30-50% above normal without the appearance of discomfort or toxic symptoms, and, provided that the diet is not grossly in excess of the normal requirements, the intake can be regulated so that a steady loss of weight



results, without undue privation. It appears that dinitro-o-cresol is in the region of five times as potent as dinitrophenol as judged by clinical results. Toxic symptoms due to excessive doses of dinitro-o-cresol are: sweating, lethargy, severe headache, loss of appetite and a definite pigmentation of the conjunctiva.

The clinical applications of dinitro-o-cresol. II. A study of myxœdema. E. C. Dodds and J. D. Robertson (Courtauld Institute of Biochemistry, Middlesex Hospital, London), *Lancet* 2:1197-1198 (November 25, 1933) No. 22.

A man, age 42, suffering from myxœdema (and who required 2 grs. daily of thyroid to keep his metabolism at a normal level and rid him of hypothyroidism) was given gelatin coated capsules of dinitro-o-cresol, at the rate of 3 mg./kg. body weight. It was found that dinitro-o-cresol did not alleviate the symptoms of myxœdema despite the fact that the basal metabolic rate was increased. It appears that the relief of myxœdema and the power of raising the basal metabolic rate are two separate functions, one of which is possessed by drugs similar to dinitro-o-cresol but both of which are possessed by thyroxine. It may be also that the increase in metabolism induced by dinitro-o-cresol is different from the normal metabolic process.

#### ALL IN SAME BOAT

During prom week-end, Dean ——— of the Medical School was rudely awakened by the ringing of his telephone. It was about three in the morning; it must be an important call. Dr. ——— asked drowsily: "What is it?"

The voice said: "Dean we need your help over at our house. We're having a party and Frater Jones has us all worried."

"Well, why call me? Is he seeing elephants and snakes and things?"

"No, Dr. ———, that's why we called. The room is full of them and he can't see any."—*Penn. Punch Bowl*.

## Society Proceedings

### ADAMS COUNTY

Resolution adopted at a Special Meeting of the Adams County Medical Society, State of Illinois, September 25, 1934:

WHEREAS: It has come to our knowledge that an organization known as the Catholic Women's Maternity Guild has instituted a plan in the City of Quincy and elsewhere which provides for hospital and maternity services for the care of Catholic women, which include pre-natal, partum and post-partum care, at a stipulated sum, which sum is to be paid to the hospital, which in turn will pay the physician for his services, and

WHEREAS: The reasons for this plan, as given, are to counteract the propaganda of birth control, and to make it easier for said expectant mothers to pay for such services, and

WHEREAS: No statistics are now available to prove that Catholic women are being deprived of the

privilege of child bearing because of the cost of hospital and medical care prior to and immediately after the period of gestation, and

WHEREAS: Vital statistics show that the birth rate in Quincy is on the increase, and

WHEREAS: The premise upon which this movement is founded is without fact or justification, and

WHEREAS: The "Principles of Medical Ethics" of the American Medical Association provide primarily for the best interests of the sick, and

WHEREAS: Such a plan is in distinct violation of the "Principles of Medical Ethics" of the American Medical Association, and in particular is not in accord with the additional Principles of the Ethics recently adopted at the Cleveland session in 1934, which reads as follows:

First: All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

Second: No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.

Third: Patients must have absolute freedom to choose a legally qualified Doctor of Medicine who will serve them from among all those qualified to practice and who are willing to give service.

Fourth: The method of giving the service must retain a permanent, confidential relation between the patient and a "family physician." This relation must be the fundamental and dominating feature of any system.

Fifth: All medical phases of all institutions involved in the medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.

Sixth: However, the cost of medical service may be distributed, the immediate cost should be borne by the patient, if able to pay, at the time the service is rendered.

Seventh: Medical service must have no connection with any cash benefits.

Eighth: Any form of medical service should include within its scope all qualified physicians of the locality covered by its operation who wish to give service under the conditions established.

Ninth: Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.

Tenth: There should be restrictions by non-medical groups on treatment or prescribing unless formulated and enforced by the organized medical profession.

Therefore Be It Resolved: That any member of the Adams County Medical Society, who in any way encourages, participates, or lends his services to this movement, shall be guilty of unethical practice, and

upon being proven guilty of such violation, by trial, as provided in the Constitution and By-Laws of the Adams County Medical Society will automatically be expelled from membership in this Society.

*Be It Further Resolved:* That a copy of these resolutions be sent to every member of the Society, to the Secretary and members of the Council of the Illinois State Medical Society, to the Secretary of the American Medical Association, and to the Editor of the Illinois State Medical Journal.

### BUREAU COUNTY

#### RESOLUTION ON DEATH OF DR. CLARENCE EARL SMART

WHEREAS, Doctor Clarence Earl Smart was a man of sterling character; was an honored and respected citizen and member of Society; and,

WHEREAS, He was a faithful and sincere worker in his chosen profession and a member of the Bureau County Medical and of the Illinois State Medical Society.

WHEREAS, He has been called to his long rest.

BE IT RESOLVED, That we members of the Bureau County Medical Society, herein assembled, do offer to the relatives and friends, our most sincere sympathy; that we assure them that our brother physician and associate will be missed by us as the years go by; and,

BE IT FURTHER RESOLVED, That the resolution be spread among the minutes of this Society and that a copy be sent to the ILLINOIS MEDICAL JOURNAL.

### CHAMPAIGN COUNTY

On October 11, the Champaign County Medical Society was addressed by Dr. John Wolfer of Northwestern University Medical School. His subject being "Reports and Treatment of Gastric and Duodenal Ulcers. It was something that was handled in a masterful manner, both from the medical and surgical standpoint of treatment.

On November 8, the address of the evening will be by Dr. Francis Eugene Seneor, on "Some Common yet Important Dermatological Conditions." That will close the year's work with the exception of election of Officers at the December meeting.

Dr. W. M. Honn, the President for the past year, was recently appointed a member of the Board of the Elks Crippled Childrens Clinic, which meets in Champaign every three months.

Respectfully yours,

W. M. HONN, President.

### COOK COUNTY

#### CHICAGO MEDICAL SOCIETY

*Regular Meeting, Wednesday, October 10, 1934*  
PROGRAM

Carcinoma of the Breast

Pathology—William C. MacCarty, Prof. Pathology, Mayo Foundation, Rochester, Minnesota.

Diagnosis and Differential Diagnosis—Dean Lewis, Prof. of Surgery, Johns Hopkins Hospital, Baltimore, Maryland.

Surgical Treatment—Arthur D. Bevan, Prof. of Surgery, Rush Medical College.

Radiological Treatment—Edward L. Jenkinson, Associate Professor of Radiology, Northwestern University.

Discussion: Richard H. Jaffe, Otto Saphir, Lewis L. McArthur, R. W. McNealy, George F. Thompson, Edwin M. Miller, Paul Oliver, Max Cutler, Pater A. Nelson, A. James Larkin.

*Regular Meeting, Wednesday, October 17, 1934*

LAY EDUCATIONAL PROGRAM—HEART DISEASE

The Principal Causes of Heart Disease....N. C. Gilbert

The Nature of the Increase of Heart Disease.....

.....Iago Gladston, New York, N. Y.

*Regular Meeting, Wednesday, October 24, 1934*

PROGRAM

"The Common Cold" (General Practitioner's Night)

"Influenza and the Common Cold"—Russell L. Cecil, Professor of Clinical Medicine, Cornell University, New York.

"Field Studies of the Common Cold"—Frank Jirka, Director, Department of Public Health State of Illinois. "The Economic Cost of the Common Cold"—W. W. Bauer, Director, Bureau of Health and Public Instruction, American Medical Association.

"Treatment, Complications and Sequelae of the Common Cold"—Walter H. Nadler, Associate Professor of Medicine, Northwestern University Medical School.

Discussion: Robert Keeton, Milton Mandel, Anders Frick, Robert Black, Isadore Pilot, Francis Lederer, John Cavanaugh Harry L. Huber.

Demonstration prior to the meeting—X-ray Carcinoma of the Hands, Edward H. Ochsner.

### RANDOLPH COUNTY

Chester, Illinois, Sept. 27, 1934.

The first meeting of the Randolph County Medical Society for the year 1934 and 1935 was held in the Illinois Security Hospital, Menard, Illinois, on the evening of September 27, 1934. The program consisted of, "The Relationship of Psychiatry in the Criminal Courts of Cook County." This was the main address of the evening and was given by Dr. Harry R. Hoffman, Director of the Behavior Clinic of Cook County, Chicago, Illinois. Other talks were given by Dr. James M. McManus, Managing Officer of the Illinois Security Hospital, who spoke on the relationship of his institution to the general practitioner. He invited all the medical societies in southern Illinois to make use of this institution for any clinical or medical material. The Honorable John Landesco, member of the Division of Pardons and Paroles, spoke of the relationship between parole work and psychiatric and medical factors. He stressed the importance of medical advice to the Parole Board. Medical and psychiatric cases were then presented by Dr. Hoffman, Dr. E. Ralph May, Institution Physician of the Illinois Security Hospital, and by Dr. David P. Philips, Psychiatrist of the Division of the Criminologist. The physicians who attended were taken through the wards where the cases were demonstrated.



The meeting was followed by an elaborate lunch prepared by the Institution Staff. Nine members of the Randolph County Medical Society were present and forty guests. The guests were from the following counties: Livingston, Macon, Perry, Jackson, Union, Randolph, Clinton, Cook and Peoria. Guests from St. Louis also attended. The purpose of having the initial meeting at the Illinois Security Hospital was twofold: First, it was an opportunity to receive information on psychiatric subjects, and, second, to acquaint the members of this county and adjoining counties of the purpose of the Illinois Security Hospital and the fact that its Staff and clinical material are available to all medical societies.

It is the plan of the Randolph Medical Society for the coming year to institute a postgraduate course for its members which will be conducted by speakers from out of the county. So far as possible authorities in his own field will be obtained as speakers. In this way it is hoped to give to the members of the society the latest information in the various branches of medicine. This first meeting included the relationship of psychiatry to courts, Parole Board and to the general practitioner.

E. RALPH MAY, M. D.,  
Secretary, Randolph County Medical Society.

### TRI-COUNTY MEDICAL SOCIETY

The 18th Annual Meeting of the Tri-County Medical Society, (Warren-Knox-Henry) was held at Monmouth on Thursday, October 18, 1934. This Society holds one annual meeting in rotation, at Monmouth, Galesburg, and Kewanee.

The first speaker on the program was Dr. Julius H. Hess, Professor of Pediatrics, University of Illinois College of Medicine, Chicago, and his subject was "The Present Status of Serum Therapy in Pediatrics." Dr. Hess reviewed the entire subject of the use of serums in the various infantile diseases, both artificial and natural serums being used. He told in detail of the use of blood transfusions in septicemias, the status of serums in scarlet fever, measles, infantile paralysis, pneumonia, and many other diseases. The paper was freely discussed by many of the guests at the meeting and many questions were asked which Dr. Hess answered thoroughly.

Dinner was served promptly at 6:30, and there were two dinner speakers on the program. Dr. Chas. S. Skaggs, President, Illinois State Medical Society, East St. Louis, and Dr. Gordon V. Harkness, President, Iowa State Medical Society, Davenport, Iowa, both gave highly interesting economic talks which were greatly appreciated by the large group present. The necessity of membership in their county medical society of all present day practitioners of medicine was stressed. Cooperation of the entire membership in their dealings with one another, and promoting contacts with various interested lay-groups, for the betterment of medical care, were also discussed in these interesting talks.

Following the dinner, Dr. Wm. R. Cubbins, Associate Professor of Surgery, Northwestern University Medical School, Chicago, gave an illustrated talk on

"Fractures around the knee joint," this subject being illustrated by both motion and still pictures. Dr. Cubbins discussed in detail the many interesting common and unusual fractures of this nature encountered in practice giving the best methods of treatment of each type.

The third speaker on the program was Dr. Frederick H. Falls, Professor of Surgery, University of Illinois College of Medicine, whose subject was "Management of Eclampsogenic Toxemia." Dr. Falls discussed the toxemias occurring in pregnancy, and particularly stressed their early detection, and the proper methods of treatment. He reported a series of some five hundred consecutive cases encountered in his service, giving complete details, and a summary of the large group. This paper was thoroughly discussed by many members and guests in attendance.

The total attendance at the meeting was approximately 135, there being physicians present from 28 different counties. Visitors were present from Burlington, Davenport, Ottumwa, Keokuk and Fort Madison, Iowa. Quincy, Peoria, Rock Island, Moline, Aledo, Macomb, Canton, Rushville, practically every city and town in the Tri-counties (Warren, Knox, and Henry) and from many other smaller towns in Western, and West Central Illinois. Although the membership in the Tri-County Society is limited to the members of the county medical societies of three counties, a mailing list of five hundred physicians is maintained, all of whom are each year extended an invitation to the meetings. All present at the meeting were unanimous in the belief that meetings conducted by several county medical societies jointly, are desirable, and should be continued.

CHARLES P. BLAIR, M. D.,  
Secretary, Warren County Medical Society.

### Marriages

THOMAS JOSEPH CONLEY JR., Chicago, to Miss Elizabeth M. Cardwell of Evanston, October 10.

CLAIRE M. DIXON, Ina, Ill., to Miss Lucile Montane of Sacramento, Calif., in East St. Louis, Ill., September 8.

MICHAEL GLEASON, Mendota, Ill., to Miss Celeste Brahaney of Buffalo, September 4.

JOHN LEONARD PROBASCO, Bloomington, Ill., to Miss Laurastine Welch of Lexington, August 18.

CYRIL FANTUS SHERMAN, Danville, Ill., to Miss Jennie Eylene Worden of Hillsboro, Wis., May 27.

### Personals

Dr. Frank F. Maple, Chicago, addressed the Fulton County Medical Society, September 27, on "Septic Abortion."

Dr. Gilbert FitzPatrick, Chicago, discussed cancer before the Marion County Medical Society, September 27.

Dr. Robert von der Heydt discussed "The Ageing Lens" before the Chicago Ophthalmological Society, October 15.

Dr. Aaron Arkin, Chicago, addressed the Rock Island County Medical Society in Moline, September 11, on lesions of the gastro-intestinal tract.

Dr. Cyrus C. Sturgis, Ann Arbor, addressed the Peoria City Medical Society, October 2, on "Treatment of Secondary Anemias."

Dr. Clarence O. Sappington, Chicago, addressed the Peoria City Medical Society, October 16, on occupational diseases.

Dr. Leon Unger addressed the Chicago Society of Allergy, among others, October 15, on "Tuberculous Abscesses in Treatment of Intractable Asthma."

At a meeting of the Chicago Orthopedic Club, October 12, Dr. Arthur Steindler, Iowa City, among others, discussed "Tuberculosis of the Wrist."

Dr. William R. Cubbins, Chicago, addressed the Rock Island County Medical Society, October 9, on "Fractures of the Lateral Condyle of the Tibia."

At a meeting of the Will-Grundy County Medical Society, October 10, Dr. Philip Lewin presented a paper on "The Classification, Etiology and Treatment of Arthritis."

Dr. James H. Hutton, Chicago, addressed the DeWitt County Medical Society, October 4, on the endocrine aspects of essential hypertension.

Dr. Max Thorek addressed the New York Polyclinic Medical School and Hospital on "A New Method of Obliterating the Gallbladder by Electrosurgical Means" on October 1, 1934.

Dr. Oscar B. Nugent lectured to the Evening Auxiliary Austin Women's Club at the Austin Baptist Church on "The Eyes of India," Oct. 22. Dr. Nugent was also invited to show his travelogue on India to the Medinah Medical Staff and Officers on Oct. 24 at the Hamilton Club. He addressed the Central Y. M. C. A. Evening Class Oct. 26, on the subject "Cataract."

Dr. Paul R. Cannon, professor of pathology University of Chicago, presented the sixth annual William T. Belfield Lecture at the Palmer House, October 25, under the auspices of the Chicago

Urological Society. His subject "Bacterial Localization."

Dr. Traian Leucutia, Detroit, discussed "Further Contributions to the Problems of Superhigh Voltage Roentgen Therapy" before the Chicago Roentgen Society, October 11, and Dr. Benjamin H. Orndoff gave a report on the fourth International Congress of Radiology.

Dr. C. R. G. Forrester gave a talk before the Tenth District Medical Society of Indiana, in Gary, October 31, on the subject "Reduction of Fractures Under Local Anesthesia with Ambulatory Treatment."

Dr. Sidney A. Portis addressed the Porter County Medical Society, Valparaiso, Indiana, September 25 on the "Medical Aspects of Gall Bladder Disease."

Dr. Geza deTakats addressed medical societies in Vienna and Budapest, last month.

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### News Notes

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—At a meeting of the Will-Grundy County Medical society at Joliet, September 26, Dr. Francis L. Lederer, Chicago, spoke on "Cancer About the Head and Neck—A Critical Analysis of the Available Therapeutic Measures."

—Speakers before the Chicago Pediatric Society, October 16, were Drs. Arthur H. Parmelee on "Physiologic Changes of Adolescence" and Bert I. Beverly on "Psychologic Problems of the Adolescent."

—A symposium on collapse therapy was presented before the Chicago Tuberculosis Society, October 11, by Drs. Frederick Tice, Allan J. Hruby, Karl J. Henrichsen, Robert F. Berry and Henry C. Sweany.

—The fourth annual Mayo Lecture in Surgery was delivered by Sir Harold Gillies, London, at Thorne Hall, McKinlock Campus, Northwestern University School of Medicine, October 23, on "The Development and Scope of Plastic Surgery."

—At a meeting of the Chicago Gynecological Society, October 19, the speakers were Drs. Fred L. Adair and M. Edward Davis on "Chronic Atrophic Dermatitis of the Vulva," and Carl Henry Davis, Milwaukee, "Use of the Colposcope in the Diagnosis of Cervical Lesions."

—Speakers before the Adams County Medical Society in Quincy, October 8, were Drs. Dan G. Stine, Columbia, Mo., on "Value of the Leuko-



cyte Count in Pulmonary Tuberculosis," and Marcus Pinson Neal, Columbia, Mo., "The Leukocyte Blood Pictures in Acute Infections."

—At a special meeting of the Will-Grundy County Medical Society in Joliet October 3, Drs. Joseph Colt Bloodgood, Baltimore, and Max Cutler, Chicago, were the speakers, on cancer. Dr. Philip Lewin, Chicago, addressed the society, October 10, on "Classification Etiology and Treatment of Arthritis."

—At a meeting of the Chicago Pathological Society October 8, Dr. Edwin F. Hirsch, among others, spoke on "Generalized Osteosclerosis with Chronic Polycythemia Vera." The presidential address was given by Dr. Isadore Pilot on "Hemolytic Streptococci, Their Present Status and Relationship to Certain Clinical Entities."

—Dr. Arthur Steindler, Iowa City, addressed the Chicago Orthopedic Club, October 12, on "Tuberculosis of the Wrist." Other speakers included Drs. Frank G. Murphy on "Traumatic Rupture of Quadriceps Tendon Above the Patella with Surgical Repair" (case presentation), and Edson B. Fowler, Evanston, Ill., "Internal Fixation of Fractures with Horn Cortico-Medullary Technic."

—Dr. James P. Leake, senior surgeon, U. S. Public Health Service, Washington, D. C., gave an illustrated lecture before a joint meeting of the Institute of Medicine of Chicago and the Chicago Society of Internal Medicine at the Chicago Woman's Club, October 26. His subject will be "Poliomyelitis, with Special Reference to Epidemiology." Dr. Leake has been in California for several months studying the epidemic there.

—The management of children's behavior problems is the theme of a series of lectures to be given at the Institute for Juvenile Research, 907 South Lincoln Street, under the auspices of the University of Illinois College of Medicine. Lectures will be delivered on Tuesdays, October 9 to November 27. For a limited number of physicians these lectures may be supplemented by clinical experience in the treatment of children's behavior problems under supervision. Dr. Paul L. Schroeder is director of the Institute of Juvenile Research.

—Medical practice and government plans for economic security were discussed at a meeting

of the North Side Branch of the Chicago Medical Society in Thorne Hall, McKinlock Campus, Northwestern University School of Medicine, October 8, as follows:

Dr. Olin West, Secretary and General Manager, American Medical Association, "The Situation Today."

Dr. Rosco G. Leland, Director, bureau of medical economics, American Medical Association, "What Medicine Is Doing."

Dr. Morris Fishbein, Editor, THE JOURNAL of the American Medical Association, "What Medicine Should Do."

Frederick A. Britten, congressman, ninth district, "The Legislator's Viewpoint."

—A series of graduate lectures on "The Physiological Basis of Individuality in the Early Embryo" were delivered at the University of Illinois College of Medicine, October 15-20, by Arthur R. Moore, Ph.D., professor of general physiology, University of Oregon, Eugene. Dr. Moore presented the following lectures on the dates indicated:

The Cytoplasm as a Biophysical System, October 15.

Special Cytoplasmic Structures, October 16.

The Individual in Motor Reactions of Simple Forms, October 17.

Phylogenetic Beginnings of the Central Nervous System, October 18.

Modifiability of Reactions, October 18.

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Lectures were given in the Hall of Science at the World's Fair during October by the following physicians. A committee of the Chicago Medical Society arranged the program through the Educational Committee of the Illinois State Medical Society:

Monday, October 1—"How to Get the Best of Asthma," William L. Beecher, M. D.

Tuesday, October 2—"Infections of the Skin," Harry M. Hedge, M. D.

Wednesday, October 3—"Cancer," Gilbert Fitzpatrick, M. D.

Thursday, October 4—"Accidents Due to 20th Century Speed," John R. Harger, M. D.

Friday, October 5—"Gall Bladder Disease," I. E. Bishkow, M. D.

Saturday, October 6—"Periodic Health Examinations," R. K. Packard, M. D.

Monday, October 8—"Significance of Bloody Urine," Davis H. Pardoll, M. D.

Tuesday, October 9—"Fractures and Other Injuries," M. H. Hobart, M. D.

Wednesday, October 10—"The Dangerous Forties," Theodore Bacmeister, M. D.

Thursday, October 11—"Problems of Deafness," Francis L. Lederer, M. D.

Friday, October 12—"Cancer," J. D. Willems, M. D.

Saturday, October 13—"Crippled Children," Charles M. Pease, M. D.

Monday, October 15—"Some of the Contagious Diseases and Their Prevention," Proctor Cook Waldo, M. D.

Tuesday, October 16—"Stammering or Stuttering," Elmer L. Kenyon, M. D.

Wednesday, October 17—"The Personality of the Growing Child," Paul L. Schroeder, M. D.

Thursday, October 18—"Infantile Paralysis," Philip Lewin, M. D.

Friday, October 19—"Lecture and Demonstration of Apparatus—Occupational Diseases," C. O. Sappington, M. D.

Saturday, October 20—"Cancer of the Skin," B. Barker Beeson, M. D.

Monday, October 22—"Cancer," Frank L. Rector, M.D.

Tuesday, October 23—"Heart Disease," C. C. Maher, M. D.

Wednesday, October 24—"Feet and Posture," Frederick C. Test, M. D.

Thursday, October 25—"The Story of Blood Transfusion," R. W. McPherron, M. D.

Friday, October 26—"Cancer," Henry Schmitz, M. D.

Saturday, October 27—"Is It Safe to Have a Baby?" Charles Edwin Galloway, M. D.

Monday, October 29—"What Can Be Done for Sinus Disease?" George E. Shambaugh, Jr., M. D.

Tuesday, October 30—"The Crippled Child Ten Years from Now," Harold A. Sofield, M. D.

Wednesday, October 31—"The Human Eye and Its Care," C. G. Darling, M. D.

Committee—Dr. Wilbur Post, Dr. Julius H. Hess, Dr. Hugh N. MacKechnie, Chairman.

## Deaths

GEORGE ENOS BURDICK, Hines, Ill.; University of the City of New York Medical Department, 1888; served during the World War; on the staff of the Veterans' Administration Facility; aged 69; died suddenly, September 24, in Glen Ellyn, of coronary occlusion.

ORAL DE WITT CUNNINGHAM, Rockford, Ill.; State University of Iowa College of Medicine, Iowa City, 1924; a Fellow, A. M. A.; aged 36; died, September 10, of agranulocytic angina.

FRED DANZIGER, Chicago; University of Illinois College of Medicine, Chicago, 1929; aged 33; died, October 12, of carcinoma of the rectum.

FRANK EYRE, North Henderson, Ill.; University of Pennsylvania School of Medicine, Philadelphia, 1876; aged 80; died, August 18, of heat exhaustion and myocarditis.

DOUGLAS NEBRASKA HARRIS, Prentice, Ill.; Northwestern Medical College, St. Joseph, 1887; member of

the Illinois State Medical Society; aged 80; died, September 8, of uremia.

CLARENCE HUGH HARWOOD, Charleston, Ill.; University of Louisville (Ky.) School of Medicine, 1910; a Fellow, A. M. A.; formerly mayor; medical director and part owner of the Oakwood Hospital; aged 51; was killed, September 1, in an automobile accident.

JAMES ARTHUR KIRK, Danville, Ill.; Hospital College of Medicine, Louisville, Ky., 1904; served during the World War; aged 53; on the staff of the Veterans' Administration Facility, where he died, September 3, of Hodgkin's disease and chronic pulmonary tuberculosis.

JULIUS H. KRUEGER, Chicago; Hahnemann Medical College and Hospital, Chicago, 1887; aged 88; died, September 25, of cerebral hemorrhage and arteriosclerosis.

CONSTANTINE S. KRYSINSKI, Chicago; Hering Medical College, Chicago, 1909; for many years on the staff of St. Elizabeth's Hospital; aged 47; died, August 1, of carcinoma of the lung.

RUSSEL BENNETT MILLER, Chicago; Columbus Medical College, 1880; aged 77; died, September 19, at Gleason, Wis., of pulmonary tuberculosis.

SAMUEL SAL MURNICK, Chicago; Loyola University School of Medicine, Chicago, 1922; aged 40; died, September 16,, of organic heart disease.

FRANK JOHN NOVAK, SR., Chicago; Rush Medical College, Chicago, 1885; a Fellow, A. M. A.; on the staff of the Frances E. Willard Hospital; aged 70; died, October 3, at his home in Riverside, Ill., of coronary thrombosis.

FRANK JOSEPH PATERA, Chicago; Rush Medical College, Chicago, 1883; a Fellow, A. M. A.; on the staff of St. Mary of Nazareth Hospital; aged 73; died, September 12, at Rhinelander, Wis., of hypertrophy of the prostate gland and chronic nephritis.

ARTHUR F. SCHELLSCHMIDT, Red Bud, Ill.; Hospital College of Medicine, Louisville, 1892; aged 64; on the staff of St. Clement's Hospital, where he died, September 17, of pneumonia.

CLARENCE EARL SMART, Granville, Ill.; Chicago College of Medicine and Surgery, 1917; member of the Illinois State Medical Society; served during the World War; on the staff of St. Margaret's Hospital, Spring Valley; aged 45; died suddenly, August 30, of cerebral hemorrhage.

THOMAS T. WAGGONER, Freeport, Ill.; Barnes Medical College, St. Louis, 1899; member of the Illinois State Medical Society; on the staff of St. Francis Hospital; aged 71; died, September 2, of heart disease.

TIMOTHY CHARLES WEBER, West Salem, Ill.; Barnes Medical College, St. Louis, 1897; served during the World War; aged 64; died, August 28, of tuberculosis.

JOHN HARRISON WEDIG, Wood River, Ill.; Chicago College of Medicine and Surgery, 1910; a Fellow, A. M. A.; served during the World War; aged 49; died, September 7, in St. Joseph's Hospital, Alton, of sarcoma of the lung.

JEREMIAH CALFER WILSON, Greenville, Ill.; St. Louis College of Physicians and Surgeons, 1883; aged 74; died, September 9, of heart disease.



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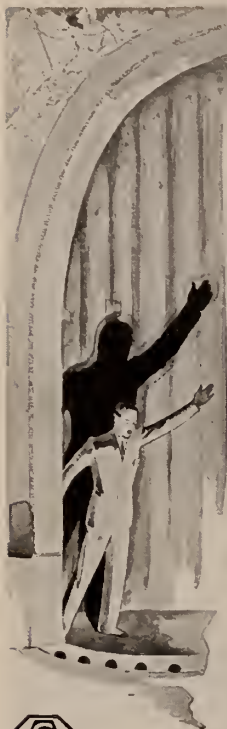
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## Book Reviews

**SURGICAL CLINICS OF NORTH AMERICA.** Issued serially, one number every other month. Volume 14, Number 4. Chicago Number—August, 1934. 288 pages with 88 illustrations. Per clinic year, February 1934 to December 1934. Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1934.

The contributors to this number are Doctors Andrews, Carl Beck, Joe Beck, Wm. C. Beck, Bevan, Brown, Bucy, Christopher, Cornell, Culver, De Tarnowsky, Gatewood, Guttman, Hedblom, Koch, Malcolm, McWhorter, Moorehead, Nadeau, Percy, Puestow, Rose, Sarma, Speer, Straus, Van Hazel.

**THE JEW IN SCIENCE.** By Louis Gershenfeld. Philadelphia. The Jewish Publication Society of America. 1934. Price \$2.75.

This volume, dedicated to Doctor Albert Einstein, records the thrilling accomplishments of the Jew in science, ancient, mediaeval, and modern. The treatment is full and comprehensive, covering all of the medical sciences and other subjects as biology, botany, zoology, chemistry, physics, astronomy, mathematics, engineering, inventions, geology, palaeontology, mineralogy, archaeology, anthropology, geography, cartography, exploration, statistics.

Chapters giving a brief history of civilization and of the Jewish people, other Jewish interests in sci-

ence and a separate chapter devoted to American Jewish scientists are also included.

**A TEXT-BOOK OF HISTOLOGY.** By Alexander A. Maximow, Late Professor of Anatomy, University of Chicago; and William Bloom, Associate Professor of Anatomy, University of Chicago. Completely revised with 662 pages with 530 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1934. Cloth, \$7.00 net.

This work has been completely redesigned and rewritten. Some of the important features are:

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**INTERNATIONAL CLINICS.** Edited by Louis Hamman, M. D. Vol. III. Forty-fourth Series. 1934. Philadelphia, Montreal & London. J. B. Lippincott Company. Price ?[

This work is a quarterly of illustrated clinical lectures and especially prepared original articles on treat-

(Continued on page 26)





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## Book Reviews

(Continued from page 22)

ment, medicine, surgery, neurology, paediatrics, obstetrics, gynaecology, orthopaedics, pathology, dermatology, ophthalmology, otology, rhinology, laryngology, hygiene, and other topics of interest.

**TEST TUBE BABIES.** By Herman Rohleder. 1934. New York: The Panurge Press. Price \$3.50.

This work deals with the history of the artificial impregnation of human beings. Including a detailed account of its technique together with personal experiences, clinical cases, a review of its literature, and the medical and legal aspects involved.

**THE TREATMENT OF INJURIES OF THE HEAD AND SPINE.**

By Jewett V. Reed, M. D. Indianapolis: C. E. Pauley & Company, Inc.

In this work the author treats of Pathology and Symptomatology of Head Injuries; Pathology and Symptomatology of Head Injuries (Continued); Immediate Treatment of Head Injuries; Subsequent Treatment; Operative Treatment; Operation for Extradural Hemorrhage and Subdural Hemorrhage; Repair of Cranial Defects; Miscellaneous Conditions Following Head Injuries. Injuries to the Spine.

**THE ENDOTOXIC INFECTIONS AND THEIR CONTROL WITH EDWENIL.** Glendale, California. Spicer & Company. 1934.

This work gives a scientific account of the researches which led to the discovery of Enwenil, followed by an account by the principles of immunotherapy, and of numerous laboratory experiments that have been made to test its effects. Its clinical application in ordinary infections is then dealt with; its application to gynaecology, to dermatology, to ophthalmology, and to various endotoxic infections is discussed, after which comes details of administration and a full index.

**LEAGUE OF NATIONS QUARTERLY BULLETIN OF HEALTH ORGANIZATION.** Vol. III, No. 1, March, 1934. Geneva. Price \$2.50 per Year.

**HEALTHY BABIES AND HAPPY BABIES.** By Josephine Hemmenway Kenyon, M. D. Boston: Little, Brown & Company. 1934. Price, \$1.50.

This work is an Atlantic Monthly Press Publication. It is a complete, practical and up-to-date handbook on the care, health, feeding, and training, both physical and mental of children up to the age of three.

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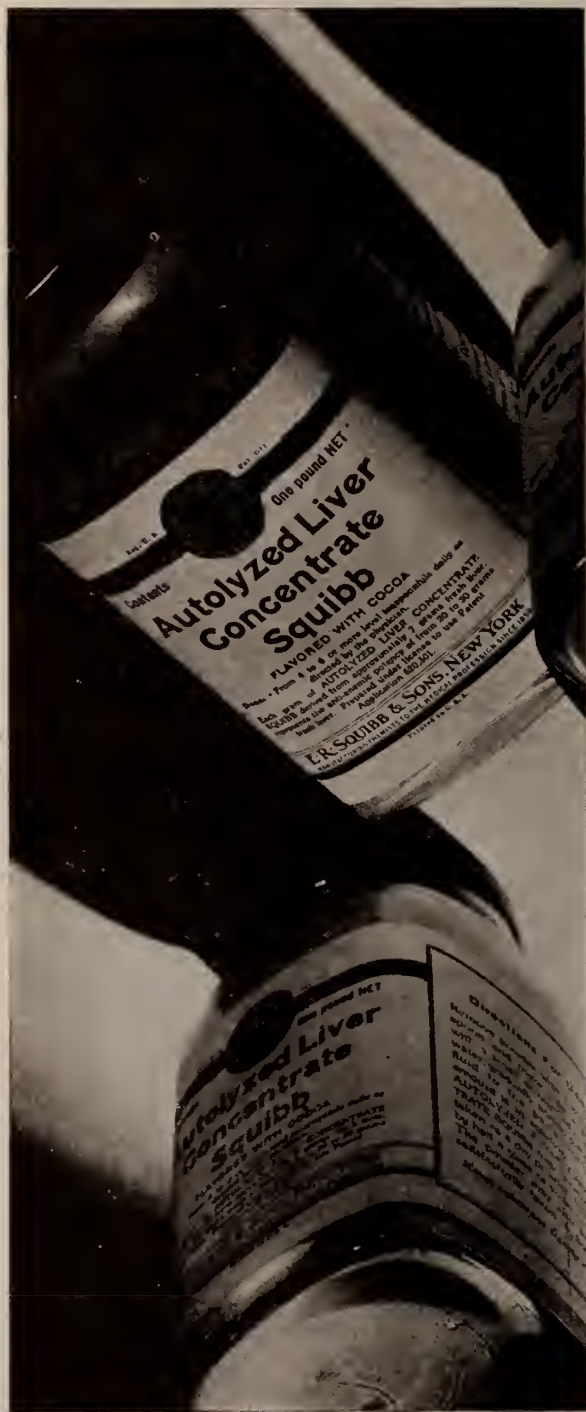
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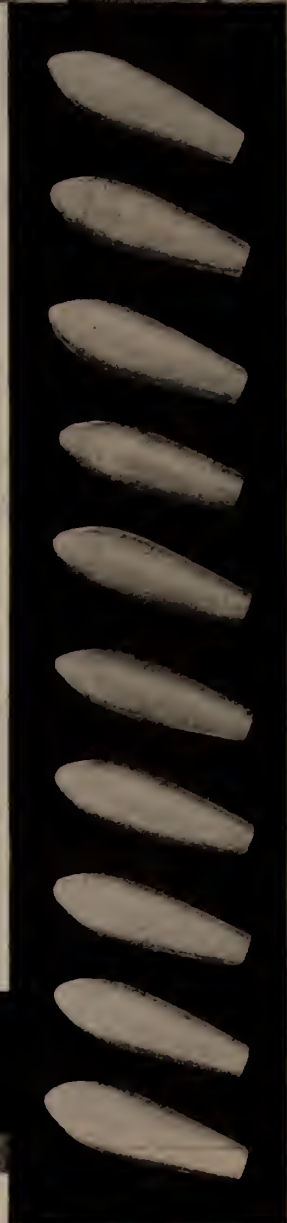
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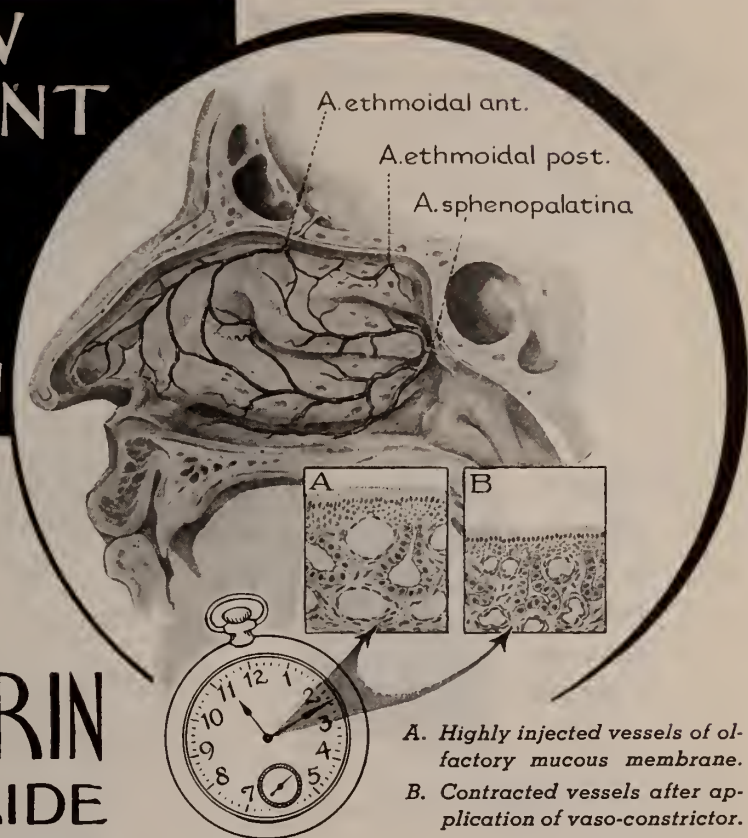


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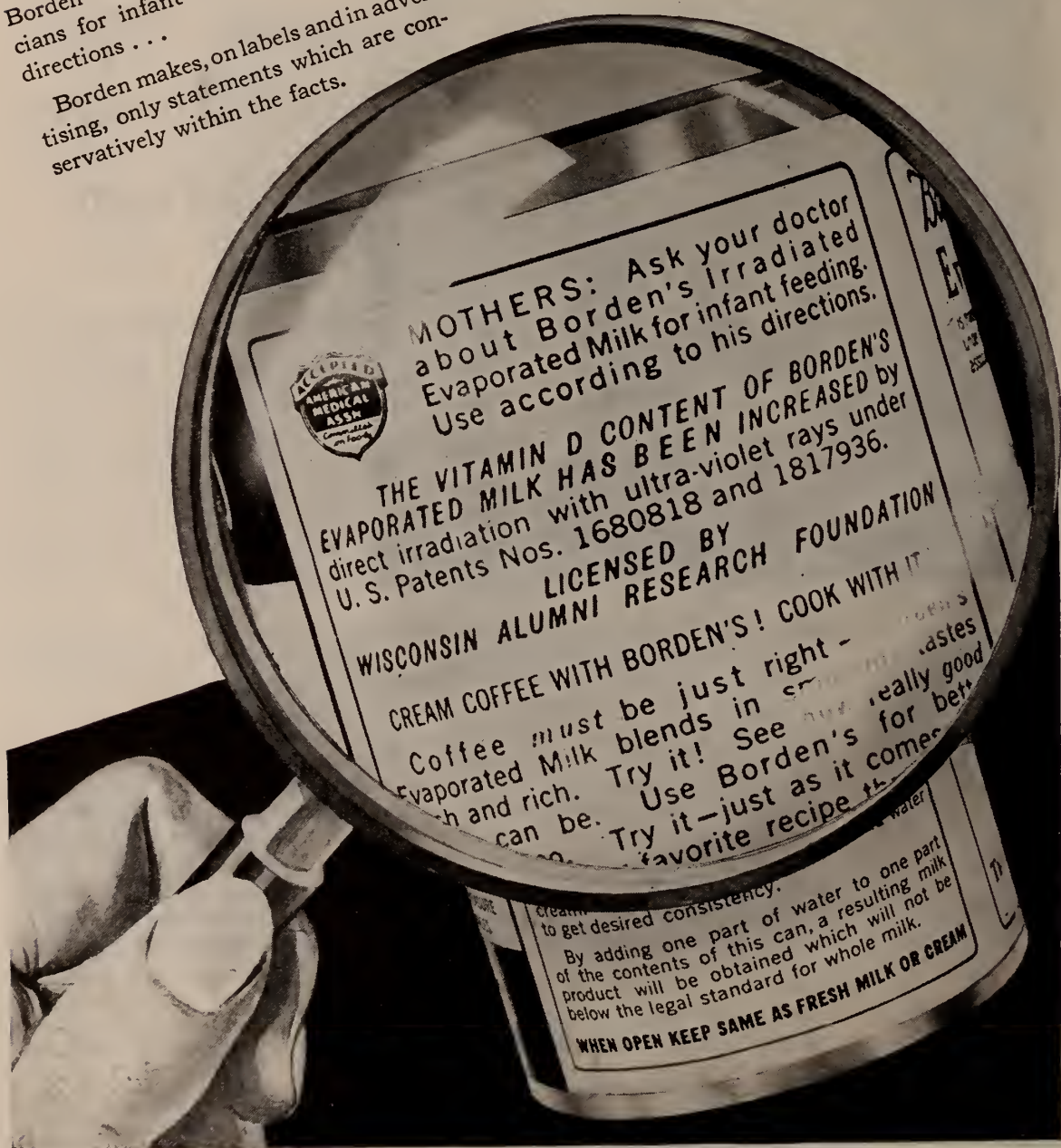
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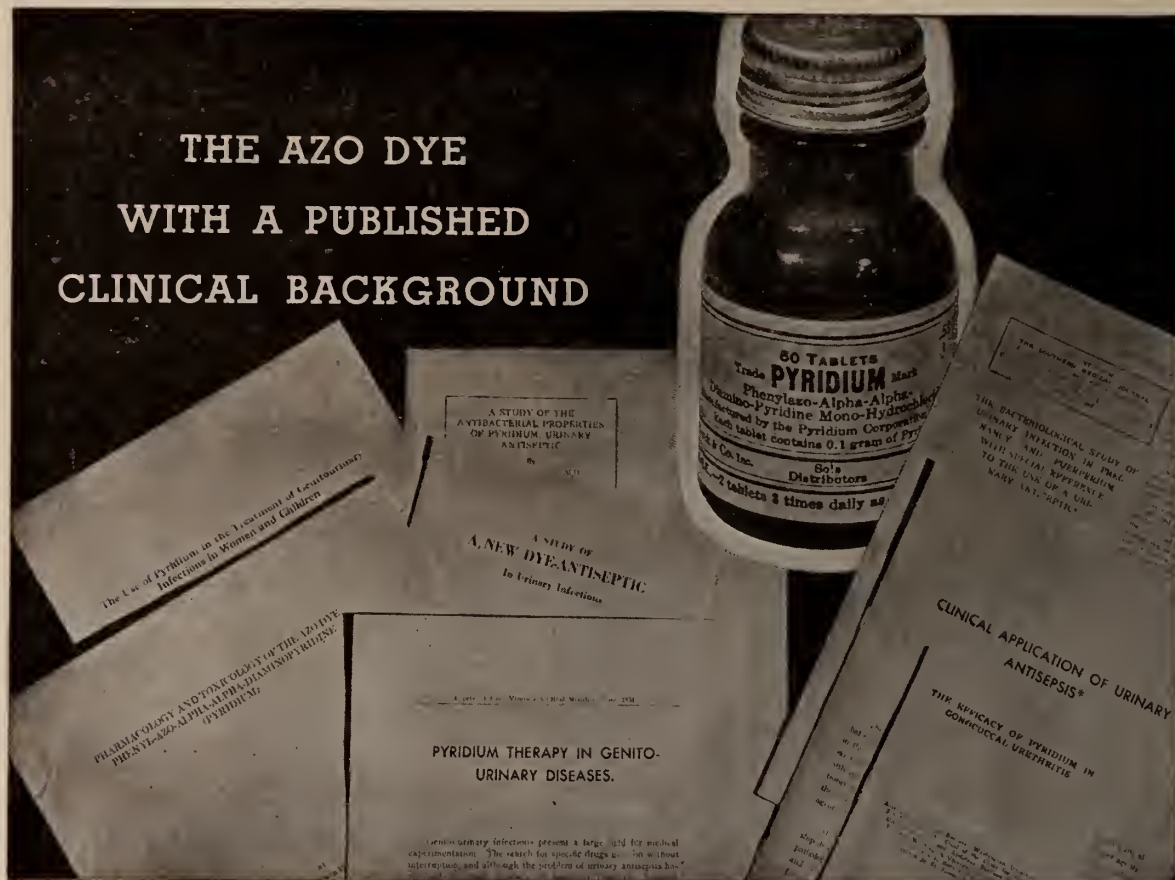
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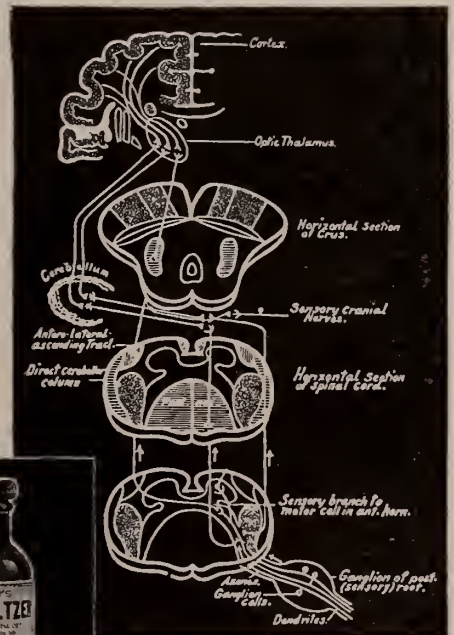
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# ILLINOIS MEDICAL JOURNAL

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## ILLINOIS MEDICAL JOURNAL

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## Editorials

### VITAMIN NEEDS AND POSSIBILITIES IN MEDICAL PRACTICE

Vitamin therapy occupies a place in the sun and demands rightful recognition of therapeutic values of these recently appreciated chemical substances.

To be specific, it is as late as 1914 that these life-giving chemical compounds were isolated by a Polish physician, Dr. Casimir Funk, following along the way, if not in the footsteps of Eijkman, a Dutch physician in Java, who in 1897 exploited the theory that food substances and disease might be correlative.

Since Funk's discovery, the exact nature, scope and practicability of vitamins and their usage have been the subject of intensified research and the object of expenditure of hundreds of thousands of dollars. To date, six definitely clear vitamins have been positively identified. Presence or deficiency of these elements, according to their presence or absence in the human diet and subsequent absorption into the metabolic processes of the body has been proven by extensive clinical experience as well as by experimentation upon both humans and animals to tilt the scale in favor of health or disease. It has been ascertained that the efficacy of citrus fruit as a scurvy preventive, learned about in 1747 by James Lind, surgeon in the Royal British Navy, was merely an instance of restoring Vitamin C to the sailors to repair dietary damage caused by the loss of fresh foods.

Demonstrated valuable, and—possibly indispensable—in the prevention and treatment of deficiency and degenerative diseases, this discovery and utilization of the vitamins marks another step in the unceasing progress of science, especially in its ramifications for the medical profession. It marks, too, another stride in those ways leading medicine to the point of self-destruction, which is inevitable. When the day arrives when prophylactic medicine usurps curative medicine, there will remain for the hands and minds of physicians only those mechanical mis-

haps of the human frame, such as broken bones, ruptured or misplaced organs, mutilated members and other accidental crimes against perfect health.

Probably no revelation in the structure and functioning of vital phenomena, since Harvey's discovery of the circulation of the blood and not even excepting the virtues of allergy, of endocrinology or of radioactivity have attracted so much attention in scientific circles.

Intimation that the vitamins hold in their aggregate the fundamental secret of the actual substance of life is not beyond possibility of proof, improbable as this extraordinary claim may appear upon first suggestion.

Vitamin authorities state positively that Vitamin E plays a definite role in reproduction. Some even go so far as to claim that Vitamin E may be a factor in sex-predetermination. Incompleted work in progress suggests strongly that this "sex vitamin E" acquires the important clinical role of predetermining sex. Numerous authoritative scientists concur that the bulk of vitamin research conclusions set forth by the laboratories to the medical profession rest upon definite scientific basis.

The study of vitaminology would appear to be an urgent demand upon the time of the general practitioner. Here is an hypothesis, so direct, and so simple in its clauses, and based upon both clinical and laboratorial findings that its demonstrations are manifest in the every day experiences of every doctor.

For years doctors have been giving Vitamin D in viosterol or the more primitive fish liver oils, in the prevention and cure of rickets. Effort to implant this vitamin in other foods is being demonstrated through the currently popular and partially commercialized irradiation of grain, milk, yeast and milk powder with varying success.

Spectacular results from Vitamin D in ricket prevention and cure are comparable to miraculous cures of beri-beri, polyneuritis, and pellagra from Vitamin B and G; the aforementioned ronting of scurvy by Vitamin C; and the almost magical powers of Vitamin A in xerophthalmia, or that dryness of the conjunctiva, which under this infection loses its lustre and becomes skin-like. Equally potent are almost innumerable virtues in the way of prevention

and cure of so-called diseases attributed to the various vitamins.

The mass of proof mounts daily higher and higher that possibly the earnest humble Funk, and the pioneering Eijkman may have unwittingly hit up "that single Alif that is the clue," to the entire theory of the creation of life. Because of fascinating disclosures, often remarkable results and sometimes nearly magical effects, it behooves every legitimate, ethical practitioner to learn thoroughly and with the greatest exactitude and care the details and positive evidence presented by experimentation and experience in vitamin therapy. For the man who has been diffident in this regard there is a great awakening. For many men it will prove a difficult re-adjustment of procedure in treatment, to discard as disease factors such positive agents as toxins and to replace them with what has been aptly termed "causation prefixed by a minus sign."

This theory of deficiency causation of disease is not a passing mirage, therefore, the entire scheme of therapeutic medicine faces most drastic revision.

And it is to be emphasized that vitamin therapy of all others is not a matter for self-medication on the part of its recipients, nor a public panacea for indiscriminate peddling on the part of the laity.

---

### DINITROPHENOL SALE TO THE PUBLIC SHOULD BE PROHIBITED

Craze for excessive slenderness among women continues to boost the death rate. There is no royal road for discarding adipose tissue no matter what the advertisements say, and foolish indeed are those females who follow the promises held out by the get-thin-quick-methods.

Dinitrophenol holds for many individuals such definite danger and high toxicity that it should never be self-administered and even when given by physicians, should never be prescribed without adequate warning to the general public, and especially to the patient, of the peril involved. So treacherous is the action of dinitrophenol that its administration should always be under the control of a physician. Investigators announce that human beings have a more variable and unpredictable susceptibility to dinitrophenol, even more so than do animals and that even the scant



amount of evidence available indicates that this special susceptibility to the drug is far more frequent than drug sensitivity as applied to most other medical preparations.

Since this is a drug used in cosmetology, the field of exploitation of dinitrophenol is crowded with commercial interests. Without a doubt a great many persons everywhere are taking dinitrophenol both without and with their own knowledge and that of their physicians. Only recently the A. M. A. reported two cases of sudden death from poisoning by dinitrophenol.

In one of these cases a young woman procured for herself a dinitrophenol preparation from a druggist and took it without medical instruction.

The druggist who sold the stuff placed instructions on the label. Now apparently a safe daily dosage would be from 3 to 5 mg. per kilogram of body weight. The patient began with a daily dosage of 180 mg. and on the fifth day was taking 720 mg. On the seventh day she died. In accordance with instructions from the druggist this patient took these doses, first day, 3 grains; second day, 6 grains; third day, 9 grains; fourth and fifth days, 12 grains each; sixth day, 6 grains.

Even so it had been thought that even such tremendous and obviously excessive doses were what had been supposed to be well below the limit of fatal dosage, based on animal experimentation.

Now the dangers of dinitrophenol should be explicitly disseminated to the public. Especially is this a paramount duty to those public health commissioners who use the radio for broadcasting. Here is where the general public needs to know the results of this drug, just as the general public was warned away from live wires in the early days of electricity. Physicians using the drug in private practice should not minimize its perils. Patients should be warned to be on the lookout for such dangerous manifestations as increased temperature, or severe urticaria and pruritus, any of which character of symptoms demand immediate discontinuance of the usage of dinitrophenol.

It seems that a so-called health commissioner saw fit to exploit over the radio this dangerous dinitrophenol to the public at large with its well-known mania for self-dosage and for experi-

ment with proprietary and much advertised products.

Unfortunately, almost always the title of "Public Health Commissioner" carries scientific weight with the laity. God only knows how much damage has been done by scattering literally to the four winds of heaven a practically unqualified endorsement of an article containing one of the elements of TNT. Dinitrophenol undoubtedly has its place in the pharmacopea but certainly not a niche on the pantry shelf or the bathroom cabinet. The drug itself is uncertain in its reactions and when this tendency is coupled with the uncertainty of combined reaction both inherent in the drug and inherent in the person who takes the drug, the scientific mind, if not the lay mind, can comprehend why dinitrophenol, no less than bichloride of mercury or strychnine literally should not be placed in the hands of women and children! Only practicing physicians who are able to control and to observe such dangerous remedies should ever prescribe them, let alone sponsor them wholesale in radio talks.

A campaign would seem to be called for that will emphasize both to the profession and to the laity the variable yet extreme toxicity of dinitrophenol, a compound related closely to TNT or trinitrotoluol.

During the World War proof was plentiful as to the marked toxicity of all such related products.

Dinitrophenol is much in the public eye at the moment. This chemical has been stressed as a compound of high value as a metabolism raising agent, through acceleration of oxidative processes. Under ordinary conditions fat is oxidized seemingly without development of acidosis.

But this drug has only a narrow margin between a dosage that is toxic and one that is therapeutic. It seems to be excreted with a fair degree of rapidity by the kidneys but not without extensive liver damage and much pigmentation of the skin. Tubular nephritis has been discovered, however, along with other renal damage.

Unfortunately, dinitrophenol will oxidize fat with speed, even though it does so with danger. And as to its dangers the public must be informed.

Far too many persons have already died or become invalided from the effects of "getting rid of that ugly fat."

## A LAYMAN'S VIEW, OR NO NRA FOR PHYSICIANS

Few, if any unskilled laborers put in the hours of unremitting toil that fall to the lot of the general practitioner. For the physician by the very nature of his task, let alone the humanitarian aspect of his business, there is neither wage scale, nor code for working conditions nor general subsidy. The average physician, while customarily regarded as anything but a "worker," really labors like a peon.

Yet it is seldom that this situation is appreciated as in the editorial appearing first in the "*Northwest Progress*," of Seattle, Wash., and reprinted later in "*The New World*" of Chicago, and which reads under the heading "A Layman's View," or "No NRA for Physicians."

"One class of workers who have suffered from the depression have uttered no complaints, have asked for no relief and have been given no consideration in the program of national recovery. Physicians seldom are regarded as workers, yet few occupations entail more hard work than that of the average conscientious physician. His working hours are not limited, there is no wage scale for the physician, nor is he protected by any law regulating his working conditions. The physician must serve first and worry about his recompense afterwards. Such is the tradition of medicine and many are faithful to that tradition.

"It is true the medical profession is a humanitarian business and physicians do not take up the profession as a business from which to obtain a profit. For all this, however, the physician must eat, must be clothed and if he has a family it must be supported. He cannot do this unless those who make use of his skill recompense him. The sick must be served and according to the tradition the physician cannot refuse his service. He cannot keep one eye on his patient and the other on his pocket book. In many cases the physician knows that the financial condition of the patient is such he can pay an inadequate recompense or no recompense at all for the service he has received. This is an act of charity on the part of the physician, but it is obvious his charity in this way must be limited or the physician could not live. The physician engaged in general practice must have a regard for his

professional duty to his fee-paying patients as well as to those who are destitute.

"Complaint, sometimes not without reason, has been lodged against the high fees charged by specialists. If they are to be specialists their fees must in most cases be higher than the fee of the general practitioner. The practice of the specialist is more limited and his responsibility greater than that of the general practitioner. Nor is the specialist always recompensed for his work. It is not unusual for him to engage in clinical work for which he receives no recompense. On the lowest basis the right of the physician to receive his fee is based on justice. The fee due the physician is a debt and payment is excused only for the same reasons that excuse the payment of other debts. The fee of the physician should be paid promptly and if possible liberally. This will be an act of charity, not to the physician, but because a liberal fee enables him to give his services free of cost to those unable to pay. Holy Scripture bids us honor the physician. The honor he and his destitute patients best appreciate is a goodly fee."

## WE MUST NOT DESTROY THE RELATION BETWEEN PATIENT AND DOCTOR

From every side comes additional confirmation of the master menace to medicine, state medicine and federal rule, against which the ILLINOIS MEDICAL JOURNAL and its editor have waged such continuous warfare for the last thirty years.

This time the public protest comes from the president of the American Medical Association, Dr. Walter L. Bierring of Des Moines, Iowa. Speaking in Oklahoma City, Okla., on Oct. 29, 1934, at a dinner in his honor, Dr. Bierring said in part:

"The medical profession has at all time adapted itself to the needs of the society which it helped build. We are awaiting curiously an announcement from the advisory committee of doctors named by President Roosevelt's committee on economic security. And we should be apprehensive of the fact that two non-medical statisticians in Washington are making a survey of health insurance needs.

"No survey yet had indicated the requirement of compulsory health insurance in this country.



We must not destroy the existing relations between patient and doctor."

### DOCTORS' VERSUS LAWYERS' FEES

If a physician charged a patient the sum of \$14,133, for saving a life, oh, what a howl would go up the nation over from "welfarers" and reformers!

Yet only recently a barrister of Chicago complacently received that amount for his services in aiding the victim of an automobile accident recover from an insurance company the sum of \$42,500 for injuries received in an automobile accident.

The plaintiff, a nurse at a prominent hospital in Chicago sustained serious injuries and brought suit for something like \$50,000. Motion for an appeal was overruled by the judge in the case, and the bill was paid in full.

The case was in court for something like three days and the compensation for this active service on the attorney's part was the amount mentioned above, or \$14,133.

Of course that three days' service in court does not take into account the years of preparation the lawyer spent before he secured the technical knowledge and the legal skill to present the facts of the matter so that justice was done his client.

But neither do the hours of service in office calls, or in from an hour to a week's constant vigil at many a sick bed indicate the years and the strength that a physician has expended so that he has obtained the experience, the skill and the medical technique and knowledge that enables him to save a life, or to make a diagnosis and to prescribe the remedial measures. Now doctors, by actual statistics, furnish in straight charity per annum some \$375,000,000 of services. Of the amounts they put on the books there is an equal amount that they do not expect to collect, and in this non-collection are rarely disappointed. Yet everywhere is heard the wail of reformers that doctors must cut down their fees.

How many physicians are there in the United States who collect annual fees of \$14,000, which the lawyer in this case received in the course of less than a week?

It is interesting to note that the three surgeons who rendered the medical and surgical service and necessary attention needed to save

the nurse's life received all told less than five hundred dollars.

### DOCTORS DESIRING TO PRESENT PAPERS AT THE 1935 ANNUAL MEETING OF THE ILLINOIS STATE MEDICAL SOCIETY

Members desiring to present papers at the 1935 Annual Meeting to be held in Rockford, on May 21, 22, 23, 1935, should write to the chairman or secretary of the section before which they desire to appear.

It is desired that all papers to be presented should be practical and not merely presented as a "hobby" of an individual physician. It is desired that a request to appear on the program before any section should be sent as early as possible to the chairman or secretary, and with the request, a synopsis of the material which the member would like to present.

We are herewith giving the name and address of the chairman and secretary of each section.

If a down state member desires to present a paper it would be preferable for him to write to the down state section officer, while the Chicago Medical Society members should write to the C. M. S. officer.

It is the desire of each section to arrange the programs well in advance of the meeting, as they will begin to arrange their respective programs soon after the first of January.

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W. M. Talbert, Secretary, Decatur.

##### SECTION ON RADIOLOGY

F. Flinn, Chairman, Decatur.

George M. Landau, Secretary, 660 Groveland Park, Chicago.

The Annual Secretaries Conference will be held on Tuesday, May 21, at 10:00 A. M. Any secretary having suggestions as to the character of program or the presenting of papers should get in touch with Dr. Donald W. Kilinger, Secretary of the Secretaries' Conference, Joliet, Illinois, as it is the desire of the officers of the Conference to have an outstanding program which will appeal to all officials of county medical societies as well as to the membership in general.

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**DR. MARTIN OTIS HECKARD**

Martin Otis Heckard was born May 23, 1863, in Cuba, Ill., son of Jacob W. and Mary E. (Kimball) Heckard. School, Cuba high, B. S., Northern Indiana Normal, Valparaiso; M. D., Bellevue Hospital Medical College (N. Y. Univ.), 1893.

Married Lenore P. Pfau of Chicago, Feb. 14, 1906.

Practiced in Chicago, professor of physiology, N. W. Dental College, 1894-98.

Entered inspection service of Department of Health, May 1, 1893. Was appointed registrar of vital statistics, Feb. 19, 1895, and Bureau Chief, Jan. 20, 1899. Later his title was changed to Bureau Chief of Vital Statistics.

Member of Chicago and Illinois State Medical Societies. Fellow of American Medical Association and member of American Public Health Association. Chairman of first commission on forms, methods and statistical procedure of section of vital statistics of A. P. H. A. He formulated the Rules for Statistical Practice adopted by the Association at Winnipeg, in 1898. (See Bulletin 108, Bureau of the Census, 1909, page 32.)

There were two crises during his term as Registrar. 1. The Iroquois Theater Fire, Dec. 30, 1903, with 582 deaths. 2. The Eastland disaster, July 24, 1915, with 811 deaths.

These special occurrences naturally caused Dr. Heckard great anxiety and added enormously to his duties.

His name as registrar appears on more than a million death certificates and almost as many birth certificates. From 1909 to 1915 the births were recorded by the County Clerk.

His death occurred in Illinois Masonic Hospital, Nov. 23, 1934, at age of 71 years, from myocarditis.

Dr. Heckard was a 33d degree mason and Past Master of VanRensselaer Lodge of Perfection which conducted his funeral service in their beautiful cathedral with a large delegation of Masons and employees of the Department of Health.

Dr. Heckard's relations with reputable members of the medical and undertakers professions were sympathetic and harmonious.

For many years the Doctor's duties included giving undertaker's examinations which were

held several times annually. He could relate many anecdotes about the weird answers given to some of the questions as well as on numerous death certificates.

Indeed he had an inexhaustible fund of stories that made him the favorite raconteur on every occasion and for every kind of an audience.

Some of his favorite stories dated back to his college days in New York where he roomed in Gramercy Park and rubbed shoulders with several of the medical elite who officed in that then aristocratic former home of the Sage, Samuel J. Tilden.

In spite of Dr. Heckard's uniform urbanity, when his hobby of vital statistics was involved he spared no diligence and would tolerate none in his associates necessary in the task to complete and accurately to verify the data.

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**WHAT SHALL WE EAT, WHAT SHALL WE DRINK AND WHEREWITHAL SHALL WE BE CLOTHED?**

Peter T. Swanish, in speaking of the status of medicine under the New Deal (Illinois Medical Journal, June, 1934) makes the following pertinent comment. We quote:

"In the first place, relatively less income is spent for medical services because in a civilization of things such as ours, the style of life is cut out of the countless contraptions without which few men would be happy. We are in a sense drowned in a bewildering complex of possessions which modern industry offers as an answer to the simple question: what shall we eat, what shall we drink and wherewithal shall we be clothed? The acquisition and the use of the means to this end, whether for good or bad, engrosses us in such unswerving concentration that life for the most part becomes a nervous scramble for things. This set of external factors determines the pattern of our social scale of consumption and the character of the economic system. The result is that things as such push medical service to and beyond the margin which separates economic from free goods. A distorted sense of values produces an irrational scale of consumption in which medical service competes with trifles and trinkets at the margin.

"At a time when incomes are falling, individuals who under normal circumstances consult the private practitioner turn to institutions supplying the needed services gratuitously. Once peo-



ple 'reap where they have not sown,' they are certain to return, and having browsed in the verdant pastures of free service, are likely to come back after the original cause has long disappeared. The product of this is that sooner or later gratuitous service comes to be regarded in the nature of a right. Custom follows from the facts of experience that give rise to it. In the long run this distorted sense of right germinates and blossoms out into institutions supplying free services. The practice is first rationalized, then institutionalized.

"By this process the shift in the demand for service from the private practitioner to the free clinic becomes permanent. Whatever value the rules and regulations of the FERA may have, they do suggest the more or less permanent institutionalization of fees over a wide area of medical practice. Once you accept the premise that a dollar in the pocket is worth two on the books, you may ultimately have to reconcile yourselves to a dollar on the books that never reaches the pocket.

#### GOVERNMENT MEDICINE FROM THE VIEWPOINT OF A LAYMAN

Catharine Stoddard, Grosse Point Park, Michigan, in the November 17, 1934, issue of the *Literary Digest*, says:

##### GOVERNMENT MEDICINE

*To the Editor of The Literary Digest*—Sir:—The idea of government medicine as advanced by Dr. H. B. Wentz of Arkansas in the October 27 issue, may appeal to people who like to think of the Federal Government as the Great White Godfather who will miraculously keep on furnishing poor folks with the benefits they are unable to buy. As a matter of fact, nothing is ever "free." If the Government assumes control of medicine, that heir of misery, the taxpayer, will find himself paying his own and his indigent neighbor's medical costs, besides the salaries of a large organization necessary to supervise a national medical service.

Graft and waste are inseparable from government enterprises, therefore socialized medicine would eventually cost the average man and woman more than the present system of private practice. Besides this, they would be restricted in their choice of a physician and subjected to factory methods of treatment. Dr. Wentz men-

tions certain districts which are too poor to support a private practitioner. The State or Federal governments could pay doctors to serve the people in these districts, at an infinitesimal fraction of what it would cost to set up a nationwide organization.

#### RELIEF PATIENTS SHOULD BE HOSPITALIZED IN ANY HOSPITAL SO DESIRING AND MEETING REQUIRED STANDARDS

##### A RESOLUTION

WHEREAS, The Illinois Emergency Relief Commission has made it possible for relief patients to be hospitalized for a stipulated payment per day to the hospital, and

WHEREAS, The Council of Social Agencies has been given the right to dispense the Illinois Emergency Relief funds for this purpose, and

WHEREAS, The Council of Social Agencies has permitted only fourteen of the hospitals in Chicago to admit these relief patients, and

WHEREAS, The doctors find an increasing number of their patients on relief, and

WHEREAS, The present arrangement of hospital relief does, in the majority of cases, remove them from the care of their family physician, and

WHEREAS, It is not the intention of the government to interfere with or disturb the relation of the patient to his family physician,

*Therefore, be it Resolved*, That the North Shore Branch of the Chicago Medical Society petition the Chicago Medical Society and the Chicago Hospital Association to exert their influence to bring about an adjustment of the present arrangement, whereby relief patients may be hospitalized in any hospital so desiring and meeting the required standards of rules and regulations of the Council of Social Agencies, and may be treated therein by their family physician.

#### PANTRY THEOLOGY

Most bishops hold their butlers in awe, and even this one was taken aback when upon informing his butler that he expected about thirty clergy to luncheon the next day, he was asked the startling question, "Be they 'igh church or low, my Lord?" "What difference does that make?" asked the amazed bishop. "Well it's like this, my Lord. If they be 'igh church, they drinks a lot, and if they be low, they eats a lot, so I likes to know what to provide."—*The Saturday Review (London)*.

## MEDICAL ECONOMICS

From various reliable sources the information that many phases of the New Deal have been awaiting the results of the most recent election, has been received. With all the talk of old age pensions, job insurance, health insurance, it is difficult to imagine that the medical profession is to be spared. Already there has been formed The Committee on Economic Security, with a non-medical Doctor as its chairman. This committee, appointed by the Department of Labor, is to study the entire question and to report back to the department head prior to the opening of Congress in January, with recommendations as to legislation to correct the present conditions.

It has always seemed a little far fetched to insist that there is a need for a great change in the method of care of the sick. Statistics prove that the death rate is about the same all over the country. There has never been a request for help by the medical men and surely the past four years enough of them have been in financial difficulties to have perceived and possibly welcome any change that would have helped themselves as well as the sick. I have heard of few complaints from the sick themselves. In fact the free choice of physicians is one of the redeeming features of the present plan of the Emergency Relief Work. If the demand is neither from the medical profession or the patients, it must come from the outside, which in this case means the reformers, social workers and politicians. It is not for us to question their integrity or honesty, but we can their judgement.

The past four years have shown very conclusively, how effectively an organized group may effect the people of this country. The news appearing daily in the papers shows that the medical profession is now to receive their attention. So far they have shown no tendency to get the opinion of organized medicine on the subject and have even given the impression of studiously avoiding organized medicine. That in itself should be enough to arouse the Doctors of this state and country from their lethargy and private disagreements, and unite them as they have never been united before to be ready to combat with information, influence and votes, if necessary, the entire question of State Medicine.

For the last year this Committee has been mentioning the spectre of State Medicine, until they are almost ashamed to again bring up the

subject. But like Banquo's ghost it will not stay down and in the opinion of this committee it is the liveliest now it has ever been. It is up to the best minds of the profession to get busy on this subject. We must be able to defend our present manner of practicing medicine and caring for the sick. We must make a careful appraisal of conditions and if changes are necessary be ready and prepared to meet them by a definite plan. Having decided on this plan it is then our duty individually and collectively to get out and use all our influence with the laity as well as the legislators to see that Revolutionary changes are not made.

All of this may seem strong talk, but this will be considered quite mild compared with what is likely to be said and written in the next few months, if we do not prepare to meet the threat. In this fight there will be work for all. The A. M. A. will be and is ready. The State Societies of many of the states are already on the job and you can rest assured that the Illinois State Medical Society has the question under serious consideration. Each of us can help by explaining to the laity what is proposed, and getting their assistance in bringing to the legislators the fact that such a change is not desired by the laity. We can write and talk to the members of Congress, and if the entire 150,000 physicians in this country use one half of the energy and influence they waste on other things, for the next three months, we can be a powerful influence, whether we are supposed to be or not.

I feel sure that either the Editor, the President or the Secretary of Illinois State Medical Society will have a message on this subject in this or the next issue of the Journal. Read them when they come out and stand ready to do your share in this, the greatest problem in Medical Economics, organized medicine has ever encountered.

E. S. Hamilton,  
Chairman of Medical  
Economics Committee.

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## CLINICAL TIPS

You can't blame the doctor. The more he scares you the more wonderful he seems when he cures you.

You can tell when a man is very sick. He doesn't think it necessary to groan louder when the doctor arrives.

A normal patient is one who waits five hours to call the doctor and then raves if he isn't there in 10 minutes.

—*Fountain Inn Tribune*.

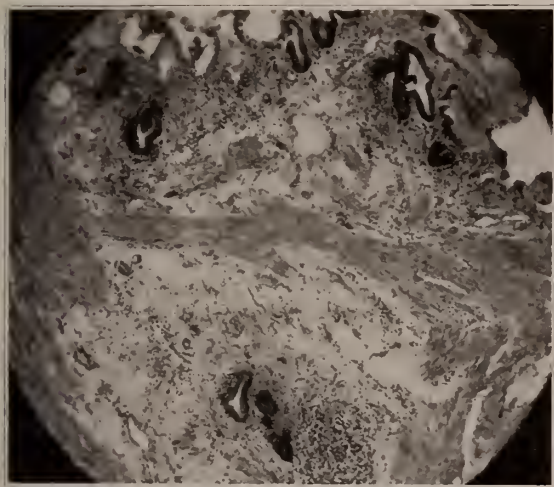


## Correspondence

### ELECTRO-SURGERY IN GALLBLADDER DISEASE

In a recent communication to the editor, Dr. B. O. Pribram writes that he described a method of destroying the "interior of the gallbladder" which he called "mucoclasia."

"In a great number of cases," Pribram says, "this method has proved its value especially in



*Reason for failure of mucoclasia.*

Fig. 1. Mrs. A. M. Chronic cholecystitis eight months after mucoclasia (electrocarbonization) of the mucosa. Note remnants of Rokitsky-Aschoff sinuses and diffuse round cell infiltration. Below in center of field an aggregation of polymorphonuclear leucocytes. Persistence of symptoms. Relieved by total obliteration of gallbladder wall by electrocoagulation. Reduced from a photomicrograph with a magnification of 105 diameters.

the case of shrunken and scarred bladders which can hardly be resected without causing serious bleeding wounds in the liver bed. . . .

"In November 1933," he continues, "Thorek described in this journal a further development of this method with more radicality under the name of 'Cholecystelectrocoagulectomy'. Thorek's idea is based upon the fact, that in the case of an infected bladder, germs can be found not only in the mucous and submucous tissues of the gallbladder, but nearly regularly in its deeper parts, especially in the Rokitsky-Aschoff sinuses. For this reason he (Thorek) extended electrocoagulation of the mucous membrane or the submucous parts of the wall to a total destroying of the gallbladder. . . . Thorek aims, if I understood him rightly, to destroy all the infected parts, the residual infection being one of the

main causes of recurrent troubles after operation. . . . For this reason Thorek insists upon the total electrocoagulation of the gallbladder and its bed for the purpose of destroying deep seated foci of infection. . . . Thorek's conclusions seem to be logical but the reason why I was not so radical and why I recommended in my first paper only the destroying of the 'internal walls' was the following: the infection is not limited to the wall of the gallbladder. We find in a great percentage of cases also, the liver itself to contain germs in large quantities and not only in the very neighborhood of the gallbladder. We cannot, therefore, succeed in any way by electro-surgical means in destroying all infected spots even when we electrocoagulate the whole gallbladder and the liver bed. . . . According to my experience electrocoagulation is in the same way the best method of treating abscesses of the liver of any kind. . . . I do not close regularly the abdominal wall in all these cases but introduce according to circumstances, a simple rubber drain. . . . Therefore I no longer destroy or resect bladders with a simple inflammation of the mucous membrane, but perform in order to conserve the function and favor a self-healing of the inflammation a wide anastomosis between



*Reason for failure of mucoclasia.*

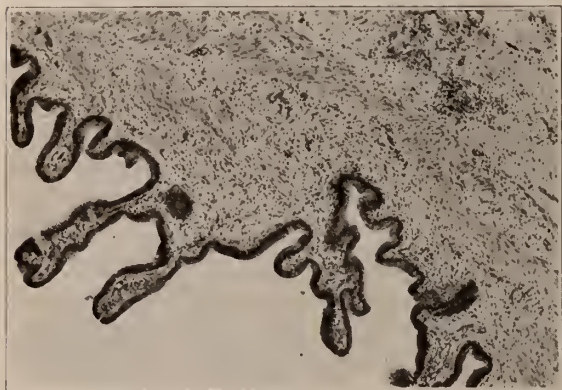
Fig. 2. Same case. Observe collection of leucocytes about Rokitsky-Aschoff sinuses (Magnification 215x).

the bladder and the common duct a cholecystocholedochostomy."

Pribram's communication was submitted to Dr. Max Thorek whose reply follows:

"Pribram's operation and his results are entirely different from mine. Obviously he mis-

interprets the difference between cauterization and electrocoagulation—two entirely different processes, in physical properties, mode of production and effects on the tissues. . . . In previous communications I pointed out that surgeons preceding Pribram practiced extensive partial cauterization of the mucous membrane of the gallbladder with the Paquelin burner for purposes of avoiding fistulas. Pribram extended such



*Reason for failure of mucoclasia.*

Fig. 3. Mrs. M. L. Chronic cholecystitis nine months after electrocarbonization of mucous membrane of gallbladder (mucoclasia). No relief of symptoms. Regeneration of mucous membrane and persistence of inflammation (round cell infiltration, and the like). Relieved by electrocoagulation of entire gallbladder wall. Reduced from a photomicrograph with a magnification of 220 diameters.

'charring' or 'burning' as he refers it, to larger areas of the gallbladder mucosa and called this procedure mucoclasia. As recently as 1933 he still speaks of 'carbonization of the mucosa of the gallbladder.'

"I have shown elsewhere that such cauterization of the mucous membrane of the gallbladder is insufficient to eradicate diseases of the gallbladder. The charred eschar resulting from the destruction of the mucous membrane of the gallbladder, acts, as do all eschars resulting from burns, as an impervious loosely attached foreign substance carrying with it the potential danger of partial or total detachment, which may result in hemorrhage, thrombosis and possible embolism. Albertin points out that Pribram lost nine patients in a series of 310 cases in which mucoclasia was employed. Coupled with this drawback there is still another, more important, factor, which is that the incomplete destruction of the gallbladder wall by carbonization defeats its purpose by permitting micro-organisms to remain dormant in the Rokitsky-Aschoff

sinuses. Carbonization is a superficial process. Electrocoagulation, on the contrary, permits destruction of tissue to any depth desired, simultaneously sealing lymphatics, blood vessels and biliary canaliculi. It leaves a dry, sterile, impervious surface tending to agglutination with scrous surfaces.

"Pribram never offered any microscopic evidence as to what transpires after his 'burning' of the gallbladder mucosa (mucoclasia). In a series of cases operated on by me, adhering strictly to his technic, I met with invariable failures. The reasons for these failures were disclosed by my reported histologic studies (Illinois Medical Journal, 1933; Journal of the American Medical Association, 1934). The illustrations here submitted (Figs. 1 to 4 incl.) tell the story of what happens to gallbladders treated *a la Pribram* and why there is, as in my series of cases a continuation of symptoms. Reoperation of these cases by my method (destruction of the entire posterior gallbladder wall and its bed by electrocoagulation with superimposition of the falciform ligament) brought complete



*Cholecyst electrocoagulectomy*

Fig. 4. Complete electrocoagulation of the entire gallbladder wall extending into the gallbladder bed. Contrast this section with the foregoing. Here a hyaline like network of coagulated (inert) tissue leaving no infectious processes behind results, which acts as a sterile tampon against the gallbladder bed.

relief. No drains were used in any of these cases (to date, 88 in all). There were no fatalities in this series.

"Pribram's argument, that because the liver harbors micro-organisms, surgical attack of the gallbladder seems to him futile. Shall we not remove an affected appendix because the large bowel is teeming with micro-organisms? Shall one stand by idly and not attack a focus in the



lung because tubercle bacilli are ubiquitous? Shall a definite focus of infection, no matter where, be left alone because other infections exist? Oh shades of Billings et al!

"Again, Pribram's latest teaching to leave inflamed gallbladders alone and perform even 'in simple cases' an anastomosis between the gallbladder and the common bile duct, will not appeal, I venture to opine, to the majority of practical conservative American surgeons. First, because such an anastomosis is difficult to perform, even in the hands of the expert, second, it leaves infected tissues behind. Besides, practical surgeons prefer to choose methods supported by facts instead of abstract theories.

"It is significant that Pribram recently abandoned his glowing enthusiasm about 'burning of the mucous membrane, substituting for it, unfortunately, a more dangerous and even less efficacious and surely more complicated method—cholecysto-choledochostomy.

"I am pleased that Dr. Pribram concedes that my 'conclusions are logical.' May I add, they were drawn not from hypotheses but from work in the laboratory, coupled with clinical observations."

#### AN EXAMPLE OF ANTIVIVISECTION SOCIETY ACTIVITIES

TO ALL MEMBERS: Reports from Hollywood say that Universal Pictures is to make a motion picture called "Life Returns" based on the experiments of Dr. Robert E. Cornish of California in which he restored a supposedly dead dog to life. The story says that Cornish will appear in the picture and that the actual experiment on the dog will be shown. We MUST stop this picture. Please write a strong letter to—CARL LAEMMLE, President, Universal Pictures, Rockefeller Center, New York, protesting the attempt to commercialize such a morbid theme. Say that the picture would give lasting offense to humanitarians; would antagonize not only human workers but many religious sects as well, and that it would have a bad influence on youth. We killed the attempt to glorify Pasteur. Let us kill this outrageous picture also.

THE NATIONAL ANTIVIVISECTION SOCIETY.

37 So. Wabash Ave., Chicago, Ill.

#### LOCATION FOR A PHYSICIAN IN ILLINOIS

Maeystown, Illinois.

October 4, 1934.

*To the Editor:* Our town of 500 population 35 miles south of St. Louis, Mo., 10 miles from Waterloo, Ill., is in need of a medical doctor—only doctor in town—nearest doctor 10 miles. Roads above average. Stand strict investigation for a doctor who wants country practice. Farming community.

Former doctor used \$150-\$200 per 60 days in drugs. Bought from Blue Line Chemical Co., St. Louis, Mo. If you have a man in your community or know of one, this will be a good location and a money maker for proper person. You can refer to Blue Line and see what former doctor did.

If you have someone who may be interested kindly get in touch with him as we are anxious to have one come here. Former doctor left two-three weeks ago. Hoping to hear from you, address

GEO. P. JOBB,

Maeystown, Ill.

#### CINCHOPHEN AND AMIDOPYRINE DANGEROUS TO HEALTH AND LIFE, SAYS FOOD AND DRUG CHIEF

*To the Editor:* Widespread use of two dangerous drugs—one which destroys the liver and the other which kills the white corpuscles of the blood—brought a warning today from the Federal Food and Drug Administration. These drugs are cinchophen and amidopyrine. Cinchophen, a chemical anodyne and sedative, is sometimes used by sufferers from neuralgia, rheumatic pains, neuritis and similar conditions. Amidopyrine is frequently found in headache remedies and other pain killers.

"Current medical literature contains many reports which clearly indicate that these drugs are dangerous to health and life," says W. G. Campbell, Chief of the Food and Drug Administration. "The gradual development of serious poisoning from the use of these drugs is often so insidious that the danger is not recognized by the user. Cinchophen causes a degeneration of the liver cells. Amidopyrine may cause a reduction in the number of white blood cells, a condition called agranulocytosis."

In issuing the warning Mr. Campbell made it

plain that he was not implying that all headache and rheumatism remedies contained these dangerous drugs. But the fact that some of them do is sufficient reason for the public to be careful. Several manufacturers declare on their labels the presence of these drugs in their medicines, but others do not. There is no provision in the Food and Drugs Act to compel manufacturers to declare either of these drugs.

The Federal Food and Drugs Act requires manufacturers to declare upon the labels of their products the presence of several narcotic drugs. When the law was passed cinchophen was unknown and the dangerous effects of amidopyrine had not been recognized. For these reasons these drugs were not included in the list.

Under present conditions buyers should observe two precautions, says Campbell. First, read the label and look for statements of the presence of these drugs. If they are not declared and there is any doubt, ask the druggist or write to the Food and Drug Administration in Washington and ask for the facts.

#### MERCK & COMPANY ESTABLISH RESEARCH FELLOWSHIPS

George W. Merck, President of Merck & Co., Inc., manufacturing chemists, Rahway, N. J., announces that the following list of research fellowships has been established in colleges and universities by Merck & Co., Inc.:

University of California, for the study of Pharmacology.

University of Pennsylvania, for the study of Physiology.

University of Pennsylvania, for the study of sedative drugs on the horse and ox.

University of Virginia, through the National Research Council, for the study of alkaloids.

University of Pennsylvania, for the study of Bacteriology.

#### AMERICAN ASSOCIATION FOR THE STUDY OF GOITER

The American Association for the Study of Goiter again offers the Van Meter Prize Award of \$300 and two honorable mentions for the best essays on the subject of goiter provided they meet the standards of the award committee. The essays should be based on original research work on the subject of goiter, preferably its basic cause. The prize essay or its abridgement is to be presented at the annual meeting of the Association to be held in Salt Lake City, Utah, in June, 1935.

Competing manuscripts should be in the hands of the Corresponding Secretary, W. Blair Mosser, M. D., Kane, Pa., not later than April 1, 1935.

The first prize of \$300 for the 1934 meeting was

awarded to M. A. B. Brazier, Ph. D., B. Sc., London, England, for her essay, "The Impedance Angle Test for Thyrotoxicosis."

First honorable mention was awarded Prof. Ugo Cerletti, Genoa, Italy, for his essay, "Three Years of Experimental Research in the Etiology of Endemic Goitre."

Second honorable mention was awarded D. Roy McCullagh, M. D., Cleveland Clinic, Cleveland, Ohio, for his essay, "Studies in Blood Iodine Using a New Chemical Method."

#### A. M. A. 1935 MEETING SCIENTIFIC EXHIBIT APPLICATION BLANKS AVAILABLE

Application blanks are now available for space in the Scientific Exhibit at the Atlantic City Session of the American Medical Association, June 10-14, 1935. The Committee on Scientific Exhibit requires that all applicants fill out the regular application form and requests that this be done as early as convenient. Applications close February 25, 1935.

Persons desiring application blanks should address a request to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

#### REPORT OF THE COMMITTEE ON MEDICAL ECONOMICS OF THE CHICAGO MEDICAL SOCIETY

*The following report is being published in compliance with a motion adopted by the Council at its October meeting. (Bulletin Chicago Medical Society.)*

The Committee on Medical Economics of the Chicago Medical Society, appointed by Dr. Chas. H. Phifer, for the year 1933-34, met for its first meeting in the latter part of October, 1933, at which meeting many of the problems affecting medical economics, with particular reference to this community, were discussed and at the subsequent meeting in November, a majority of the members decided that the Committee devote its major time to a study of the abuses of Clinic and Dispensary practice in Chicago. After carefully surveying this field it was decided to divide Clinics and Dispensaries into two groups; Group 1, those organized and operated for teaching purposes directly affiliated with colleges of medicine in the community, and Group 2, those which were an integral part of medical-school organizations.

In submitting this report, your Committee believes that the care of the public in matters of health, disease, and injury is, and should continue to be, under the direction of the medical profession. The relationship of the private physician to the individual patient is the most important unit in such an association. The integrity of this unit should be the basis and principle of all organized medicine. It, therefore, becomes necessary, in order to safeguard the community health, to protect the rights and interests of the private physician, as well as the public individual whom he serves. Hospitals, health centers, governmental agencies or bureaus and other similar organizations are merely accessory to the private physician, and any form of competition set up by such organized groups against the private physician is contrary or inimical to the public interests.



We would at this time also state that any extra professional plan which has for its aim the economic control of the medical profession limits and may prohibit the patient's selection of his physician and is, therefore, incompatible with the best interests of the community at large.

It has been alleged that one of the chief causes of the shrinkage in the family doctor's income is the tremendous increase in the attendance of patients at the so-called free Clinics. The actual increase has been variously estimated and the figures vary a great deal. Table I shows the marked increase in total patient visits which has occurred over a period of four years in the medical schools alone.

It has become rather commonplace for individuals to expect medical care without making remuneration for such.

There has been little objection on the part of the medical profession to treating the sick poor in the so-called free Clinics. Due to the association of these Clinics with medical schools, these patients receive most excellent supervisory care and study unless there is an excess number of patients admitted. Some of the medical schools have already inaugurated a plan which limits the number of patients in their Clinics, and invite further co-operation on the part of the medical profession to this end.

The chief complaints that have been registered against the so-called Free Clinics are not specifically against these Clinics as such, but against the advantage taken of the opportunity for such free care on the part of individuals who are able to pay for medical service. Much of such abuse can be traced to the organization of the management and the administration of these Clinics by lay personnel without adequate representation of the medical profession on their management Committees. Considerable of this neglect can be placed at the door of the medical practitioner for not assuming his share of this responsibility and those obligations which rightfully belong to the profession in the direction of these organizations. More medical men should occupy positions on the managing boards of institutions and should advise and direct these boards in the management of these Clinics.

The reasons for attendance at free Clinics are variable. It is believed that by far the largest number attend free Clinics because they have no funds with which to pay a physician. This, in part, is due to the depression, although not entirely so, since statistics collected before the depression show a definite increase in attendance in all so-called free Clinics. In attempting to arrive at the existing situation in this community with the idea of determining possible abuses in Clinic or Dispensary operation, from the standpoint of medical economics, the Committee formulated two different questionnaires which were arranged to seek out information pertinent to this problem. Certain definite information, particularly gross figures on numbers of patients and total patient visits, stand out as landmarks in these studies, and while other accumulated data has given the members of the Committee a considerable knowledge of

the workings of the various Clinics, many of these facts cannot very well be transferred to this report.

### TEACHING CLINICS

There are six medical colleges in Chicago which are open for the teaching of medicine to students today. Five of these colleges operate so-called free Dispensaries. One has a definite program which involves the operation of a Clinic on a pay basis. This latter, the University of Chicago Clinics, has been studied by the Committee and is at the present time the subject of further work by a special Liaison Committee endeavoring to alter those abuses which have disturbed the medical profession most. The statistics of this latter institution have, therefore, been deleted, and only the data from the five medical colleges are included below. This data encompasses the work done in these out-patient departments in three separate years, 1929, 1932 and 1933, to bring out increases in the number of patients and patient visits, as well as variations in income received from such visits to these institutions. A great increase in both the number of new patients as well as the number of total visits is most striking and, as mentioned somewhere else in this report, is to some extent the result of the economic depression. To bring out the importance of this latter factor the Committee also obtained information and studied data on relief afforded in Cook County during the past year and also presents comparative numbers of families and persons receiving aid in different months during the past year for comparison:

	1929		Income per Patient Visit
	New Patients	Total Visits	
Illinois .....	15,702	98,769	22 cents
Rush .....	20,502	111,028	91 cents
Northwestern .....	13,035	86,904	64 cents
Loyola .....	5,277	19,593	44 cents
Chicago Medical .....	2,182	8,869	no data
	1932		Income per Patient Visit
	New Patients	Total Visits	
Illinois .....	14,767	118,539	22 cents
Rush .....	26,061	171,228	39 cents
Northwestern .....	18,742	129,609	36 cents
Loyola .....	5,494	31,560	27 cents
Chicago Medical .....	7,041	28,309	About 40 cents
	1933		Income per Patient Visit
	New Patients	Total Visits	
Illinois .....	16,336	141,109	22 cents
Rush .....	31,742	212,500	19 cents
Northwestern .....	24,916	153,497	23 cents
Loyola .....	4,691	31,600	29 cents
Chicago Medical .....	5,463	26,055	About 40 cents

The effect of the industrial crisis on the financial status of the people of Cook County may be obtainable by reviewing the following figures which will show the approximate number of people unemployed and on relief during the past two years:

January, 1932 .....	124,000	families or	558,000	persons
March, 1932 .....	134,000	families or	603,000	persons
August, 1932 .....	114,000	families or	513,000	persons
October, 1932 .....	161,000	families or	724,000	persons
November, 1932 .....	170,000	families or	765,000	persons
December, 1932 .....	180,000	families or	810,000	persons
January, 1933 .....	160,286	families or	721,287	persons
February, 1933 .....	190,000	families or	855,000	persons
March, 1933 .....	175,282	families or	788,769	persons
April, 1933 .....	171,723	families or	772,753	persons
May, 1933 .....	163,496	families or	735,732	persons
June, 1933 .....	144,825	families or	651,712	persons
July, 1933 .....	129,642	families or	583,389	persons
August, 1933 .....	116,777	families or	525,496	persons

September, 1933 .....	106,822 families or 480,699 persons
October, 1933 .....	104,078 families or 468,351 persons
November, 1933 .....	108,434 families or 487,953 persons
December, 1933 .....	110,370 families or 496,665 persons
January, 1934 .....	81,296 families or 365,832 persons
February, 1934 .....	74,547 families or 335,461 persons
March, 1934 .....	83,899 families or 377,545 persons

Inasmuch as many of the people on relief constituted the overload in the clinics during the past two years, something should be said regarding the amount of money paid the indigent and unemployed in Cook County during this time.

The average amount received per month per family has been \$21.66 or \$5.04 per person. The \$5.04 includes not only food but what payments were made for rent, clothing, medical care, etc. Free visits made to private and public clinics by the above group average one visit by one person during a month for each eight people on relief.

While there was some reduction in the number of families on relief during C. W. A. programs, the amount of money they received was so small that they were unable to pay for medical and hospital care and in the event of illness had to be transferred back to the Illinois Emergency Relief rolls for medical and hospital service. Since the closing of the C. W. A. the relief rolls are again near the peak load. The above picture should be seriously considered when one discusses the high enrollment in the clinics during the past few years.

#### NON-TEACHING DISPENSARY CLINICS

There has been a definite tendency on the part of hospitals and medical men associated with hospitals and some groups of medical men outside of hospitals, to attempt to establish so-called free or moderate-fee Clinics in various communities in Cook County. May we call to the attention of the members of the Chicago Medical Society that the establishment of such Clinics is against the policy of the Society as set forth in Medical policy No. 4. "Only recognized Medical Schools Incorporated for the teaching of undergraduate and graduate physicians should conduct Dispensaries."

The following list of non-teaching Clinics, both private and Governmental, with the total number of patient visits for the past year gives one an index of the invasion of the field of practice of medicine through such organizations.

#### TOTAL PATIENT VISITS (1933)

Board of Health, Venereal Clinic.....	144,501
Chicago Lying-In Clinic.....	16,693 (1932)
Chicago Memorial Hospital.....	1,521
Chicago Tuberculosis Institute.....	10,534
Children's Memorial Hospital.....	70,510
Cook County Hospital.....	200,000*
Evanston Hospital .....	18,409
Illinois Eye and Ear Infirmary.....	69,733
Illinois Masonic Hospital.....	8,490
Illinois Social Hygiene League.....	99,244 (1932)
Lakeside Clinic and Postgraduate.....	647
Michael Reese, Mandel Clinic.....	144,722
Mt. Sinai Hospital.....	41,704
Municipal Tuberculosis Sanatorium Dispensaries	298,456
Policlinic Dispensary .....	26,933
Provident Hospital Dispensary.....	47,254 (1932)
St. Elizabeth's Hospital .....	5,994

St. Joseph's Hospital .....	6,530
St. Luke's Hospital .....	62,118
West Side Post Graduate.....	15,157
Women and Children's Hospital.....	10,047
Lewis Memorial Maternity Hospital.....	No report available

Taking both the teaching and non-teaching Clinics, one finds the staggering total of 1,863,967 patient visits in one year in Cook County, most of which is the result of free service given by the physicians. Little does the public know or realize the great contribution that the medical practitioner is making to the community in this work. Are all these visits the result of indigency?

It should be expected that with the rapid growth of the metropolitan area there should also be a gradual increase in the number of indigent patients in the community. The increase in indigency brought forth the social worker in an attempt to correct the evils existing and while the social worker has added to the solution of the problems, a closer cooperation is needed between the social agencies, the social worker, and the medical profession providing such care, and that in this closer cooperation a basis for the ability of the patients to pay a medical fee should be one of the points for determination.

Appreciating that cooperative effort accomplishes much more than controversial thoughts and statements, the Committee has arranged a meeting with the Chiefs of the various Dispensary Clinics in the City of Chicago, at which time the different problems which have appeared will be discussed and an attempt made at their solution.

#### RECOMMENDATIONS

In order to correct the abuses of the so-called free Dispensary Clinic, the Committee presents for your study, approval and action the following recommendations:

1. Realizing, as stated above, that there is an inadequacy of investigative effort from the viewpoint of the economics of the practitioner of medicine, your Committee feels that a competent Supervisor of Social Service be employed by the Chicago Medical Society, to develop those standards embodied in what we might term is the medical viewpoint, and proceed to organize a group of approximately six associated who would function in a supervisory capacity in various Clinics in different parts of the city, to present this viewpoint to the larger group of social service workers now operating in this field.

2. Your Committee would also make a definite recommendation in carrying out one of the provisions of proper social service function with a uniform simplified questionnaire concerned with every possible phase of family income be adopted and most diligently answered in every instance by the patient when he seeks care.

3. Your Committee feels that there is considerable duplication of effort and waste of funds as a result of migratory patients transferring their affiliations from one Clinic to another and recommends that a bureau of registration, called a clearing house, be established and a simple means of registry be employed for every patient presenting himself to a Clinic for care. All of the



Clinics operating in the community would utilize this service, would be given duplicate registration slips for their files and limit these migratory tendencies and thus limit unnecessary duplication of physical examination, laboratory examinations, registrations, etc.

4. Your Committee has taken notice of campaigns of education which have been started by certain pharmaceutical houses, namely, Parke Davis, Meade Johnson, and E. R. Squibb, and the Metropolitan Life Insurance Company, in carrying a message to the public concerning the important part the family doctor plays in bringing health to humankind.

5. During the winter this Committee arranged liaison with a committee from the Chicago Hospital Association and with a representative of the Council of Social Agencies to improve conditions as they affect the patient, the doctor and the hospital. We, therefore, recommend this liaison be continued.

### REPORT ON THE ST. LOUIS PLAN

At a previous meeting the Council requested this Committee to study the so-called St. Louis Plan and to report the results of this study to you. The Committee has gone over the material submitted in great detail and wishes to report as follows:

The material submitted consisted of a brown covered Booklet called "Code and Contract Board of the St. Louis Medical Society" and a mimeographed copy entitled "Proposed Declaration of Agreement Between the Code and Contract Board of the St. Louis Medical Society and the Hospitals."

#### 1. *Proposed Declaration of Agreement Between the Code and Contract Board of the St. Louis Medical Society and the Hospitals*

The contents of this proposed declaration were considered seriatim and will be presented to you in this form:

1. All internes shall be encouraged and urged to apply for junior membership in the St. Louis Medical Society.

2. All staff members shall be urged to join the St. Louis Medical Society.

3. All doctors of medicine practicing within the hospital shall be urged to become members of the St. Louis Medical Society.

It is not necessary at this time to call your attention to the fact that this program has been in vogue in the Chicago Medical Society for many years.

4. Paragraph 4 deals with the classification of patients with particular reference to so-called indigent patients. They make the following classification regarding indigent patients who apply to a clinic:

(a) Indigents referred by social agencies for whose medical care all agencies are directly or indirectly responsible.

(b) Transient indigents who have no local physician and who cannot be taken care of by city institutions on account of legal restrictions.

(c) Indigents who are local residents who apply directly and immediately to out-patient departments.

(d) Or indigents who are referred to the out-patient

departments at their own request or on the advice of the physician.

After this classification has been set up, certain policies have been advised that shall be enforced.

(a) The St. Louis Medical Society agrees concerning class "a" above that the out-patient departments shall give free medical service including physician service subject to such restrictions as are common in well regulated social agencies, a statement of those policies to be submitted by each social agency to the St. Louis Medical Society for criticism and approval;

(b) For the purpose of safeguarding the medical care of indigent transients, the St. Louis Medical Society agrees that out-patient departments may give free medical attention after the real indigency of the transient has been determined by a thorough investigation.

(c) Concerning class "c," the out-patient departments will agree in each case to make an investigation upon the following points:

1. Whether or not the applicant for free medical attention has or has had within the last six months a private or a family physician.

2. The reasons why the applicant does not return to this private or family physician in his present need.

3. The willingness or unwillingness of such a physician to continue the treatment of such a patient. In case the physician is willing to treat the patient, the out-patient departments will refuse such attention. If, however, the physician is willing to release the patient to the out-patient department he will signify this in writing or in some other manner acceptable to the St. Louis Medical Society.

(d) Regarding class "d," the out-patient departments agree to receive patients referred to them by physicians for free medical attention subject, however, to an adequate social investigation. The physician will, however, state in his blank or letter that he is not charging the patient.

(5) A further study of this report shows that the St. Louis Medical Society has asked hospitals and social agencies to submit to the St. Louis Medical Society a statement of their admission policy.

(6) Hospitals, teaching institutions, dispensaries and clinics are asked to co-operate with the St. Louis Medical Society in the correction of any form of the abuse of medical charity.

(7) Information ethically regarded as privileged should not be given to any corporation or individual other than the patient without the knowledge or consent of the physician.

(8) Hospitals are asked not to allow an interne or house officer, except in emergencies, to give professional service to a patient paying any fee whatsoever unless the patient is assigned to a doctor of the patient's choice.

(9) Whenever a patient has been treated in a dispensary or a hospital under false presumption of indigency and it is later found out that the patient was able to pay for it at the time the free service was given, they believe the patient should be charged both by the hospital and the physician for the service rendered.

(10) The hospitals are asked to cooperate with the St. Louis Medical Society on these various points.

When patients make application for free medical service they are requested to fill out an application blank and an affidavit. The questionnaire contains the following eight questions:

1. Do you now own any real property?.....  
If so, where is it located?.....
  2. Do you now rent the property in which you live?  
If so, to whom do you pay rent?.....
  3. Are you, or any member of your family, now employed? .....  
If so, by whom?....What wage or salary?....
  4. Have you any income from rents, stocks or bonds?  
If so, amount of income.....
  5. Have you a bank account?.....  
If so, what bank?.....
  6. State in full your present financial condition, and give full statement of your present income, if any:  
.....
  7. Number of persons depending upon you for support? .....
  8. Relationship of dependents.....
2. *Code and Contract Board of the St. Louis Medical Society*

The booklet entitled "Code and Contract Board" deals chiefly or more specifically not with the abuse of medical charity but with the question of contracts or agreements either verbal or written.

Contracts or agreements, verbal, written or implied, shall be grounds for trial on charges of unethical conduct before the Censors Committee if the contract involves:

1. Solicitation of patients, directly or indirectly.
2. Underbidding to assure contracts.
3. Compensation inadequate to assure good medical service.
4. Interference with reasonable competition.
5. Prevention of free choice of physician.
6. Conditions inadequate for proper service to patients.

7. Any provisions or practical results contrary to sound public policy.

This Board has power to prefer charges of unethical conduct against members when these various principles have been violated.

Members are restricted from making contracts on any terms other than the terms authorized by this Code and Contract Board.

One very interesting thing is a recommendation of this Committee that the members of this Society present their accounts for professional services at the close of the attendance and it shall be the duty of each member to obtain, if possible, a monthly settlement from all his patients. They evidently believe in having the doctor increase his business efficiency.

At the end of this Booklet is a Fee Table that is an interesting one.

#### CONCLUSIONS

1. Many of the articles contained in the above St. Louis Plan have been in practice in the Chicago Medical

Society for many years; namely, Interne Committee, Membership Committee, Contract Practice Committee.

2. Those articles which refer to hospital cooperation, indigency and contracts have occupied much of the time of your Committee on Medical Economics prior to their study of the St. Louis Plan.

3. Your Committee, realizing the importance of such matters, have built up a liaison with the hospitals of Chicago through the Chicago Hospital Association, and, in an endeavor to control more carefully the problem of indigency, are working on a plan with the Council of Social Agencies that should prove helpful in this latter matter.

#### COMMITTEE ON MEDICAL ECONOMICS.

#### WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

A meeting of the Board of Directors of the Woman's Auxiliary to the Illinois State Medical Society was held Saturday, October 20, 1934, at the Woman's University Club, Chicago, the president, Mrs. Lucius Cole, presiding. In addition to routine business, the organization chairman, Mrs. Middleton of Pontiac, reported the organization of McHenry, Lee and Fulton County branches, also the Calumet branch in Cook County.

Dr. R. R. Ferguson, chairman of the advisory committee, gave a brief talk on "Auxiliary Policies." He commented on the value of the Auxiliary contacts with the outside, advised us to keep ourselves informed by reading the medical journals, commenting particularly on Dr. Whalen's article in the June issue of the JOURNAL on "The Perils and Pitfalls of Medicine" and also to his article in the October JOURNAL on "False Medical Statistics." He urged an active interest on our part in politics in order to secure the passing of necessary legislation and to counteract any detrimental legislation. He urged us to secure the help of other organizations.

The president emphasized that one of our main objects this year is to combat literature detrimental to the profession.

MRS. LESLIE B. JOSLYN,  
Chairman Press and Publicity.

#### WOMAN'S AUXILIARY TO THE CHICAGO MEDICAL SOCIETY

One great bond we have in common, one ideal that we hold highest among our earthly ones—the bond, that of participating in the practice of the noblest of professions; the ideal, that of using our services widely in the interest of that profession and mankind, and proving ourselves true helpmates, both individually and collectively. Collectively, we are a strong force that may be of some use in a quiet way, to the medical profession. We, who know the unselfishness of these men of ours, can do much to enlighten a frequently misinformed public about the true character of medical work and its plans for public health and welfare. We can, in a non-aggressive way, offset much of the wicked propaganda constantly kept before an ignorant and deluded populace.

With this in mind, let us use our time wisely, make



our plans carefully, and thank God for the opportunity to be of service to this profession of which we are an honored part.

MRS. ROBERT W. TOMLINSON,  
President of the National Auxiliary.

REMARKS BY THE PRESIDENT OF THE WOMAN'S AUXILIARY  
OF THE CHICAGO MEDICAL SOCIETY

The following excerpts are from the President's news letter, November, 1934:

For some time there has been a desire within the Central Auxiliary Council to find a means of letting every individual member of the Auxiliary know what is being accomplished. Knowing there will always be members who cannot attend meetings but who are nevertheless vitally interested and whose interest we wish to hold, the Council this fall decided that *News Letters* should go out at intervals in an endeavor to keep the entire Auxiliary body informed.

Self-education may be accomplished through lectures given at the Central organization or to your own group; through reading and studying all Auxiliary letters published in the National, State and County Journals and by reading in the *Bulletin* of the Chicago Medical Society of those problems which the Society is facing.

This year your Legislative Committee reports that the American Medical Association is working in conjunction with the American Bar Association toward making uniform State laws, a model Lien Law, model Narcotic Act, Basic Science Law, Law for the Sterilization of the Socially Inadequate, a bill to curtail the use of hypnotics such as the Barbitals and so on. In the local field legislative problems are causing much concern. The anti-vivisectionists, with a recent gift of one million dollars, are bending every effort to pass laws which will ring the death knell to scientific progress in medicine, or even what is worse, to the continuance of the production or development of those products which have freed us of scourges and epidemics. We are practically without funds. Our only hope lies in the faith we hold that in serving the greatest good to humanity we bring the greatest good to all living creatures. Study, if you are not already familiar with the facts, the long list of conquered or controlled diseases most, or all, of which were at some period of their development, dependant upon animal research. Note, too, that they serve the animal kingdom in its entirety, both the higher and the lower.

Watch for the lecture on legislative problems and if you want the facts on vivisection ask your Program Chairman to send them to you. We shall need your help in this and on many other problems this year, so stand by for our calls.

I want to impress upon you that your chairman will be only as effective as her group. Each of you must feel the responsibilities, which are but supervised by your chairmen, and co-operate wholeheartedly.

Your Public Relations Committee supervises perhaps the most vital function of the Auxiliary. It is through this department that a better understanding must be developed between the profession and the public. To quote from a National Auxiliary "News Letter:" "A well-schooled Woman's Auxiliary group reaches out

into every phase of woman's organization work. The doctor's wife takes a part and generally a prominent part in Public Welfare work, Parent-Teacher Association work and Federated Charities activities.

We ask, and we wish you to consider it a duty, that each member furnish the name and address of the Program Chairman of any and all organizations to which you belong.

We desire that you watch all lay magazines for articles and radio broadcasts for programs which are in any way a deterrent to public health or welfare and report these things to your Public Relations Chairman.

You must keep an ear open at all club meetings and be so informed and interested that should cultists, charlatans or pseudo health information be sought you can and will speak up and direct the interest into channels of truth.

Your Program and Education Committee is your stimulator of interest—your means of gaining and disseminating knowledge. We are especially favored in Illinois; your chairman has but to go to the office of the Illinois State Medical Society and ask Miss Jean McArthur and there are ready for your needs innumerable Study Envelopes from which to make a selection, or a speaker may be secured there. If some special subject is favored by an individual or Branch and your group is too small to ask a lecturer to devote his time to it—have your Councilor ask the Central Organization to have such a lecture subject during the year.

Your Hygeia Committee is a means of Self and Lay Education. Material furnished in the *Clip Sheet* should be read and discussed at each meeting. The reading of *Hygeia* and the spreading of its messages over an ever-widening circle of libraries, schools, homes, reading rooms and wherever the Christian Science Monitor is found—will gradually enlighten ourselves and a vast public of reasoning minds.

Be sure every step is approved before you take it—and do not lay aside a labor until you are sure it is as nearly completed as you can do it.

Right now we are bending every effort to encourage public attendance at the Laity Meetings of the Chicago Medical Society, as per our recent letter. Keep them in mind. Write on your calendar: November 14, Germs; December 5, Cancer; January 9, Overweight, and *tell everybody*.

Go to meetings of those who hold an opposite opinion to ours. *Know* what we are trying to combat.

Year by year we are proving our value and as steadily we are receiving more and more calls to do our part toward influencing public opinion and educating the laity on health problems.

This year's annual Auxiliary bridge party will be held at the Bal Tabarin of the Sherman Hotel, with buffet luncheon, table and door prizes. Tickets \$1.00. *See how many outsiders you can interest.* Come and bring others.

I doubt if I shall ever write so long a *News Letter* again, but the foundation seemed necessary for those who belong but have not yet become a part of us. From now on it is our plan merely to keep you aware of things as they transpire and progressively to build up

an interest until it becomes an enthusiasm for The Woman's Auxiliary to the Chicago Medical Society.

MAUDE H. WOLFER, President.

## EDUCATIONAL COMMITTEE

### *November Activities*

#### SPEAKERS BUREAU:

40—Doctors gave popular health talks before lay groups. Parent Teacher Associations, Women's Clubs, High School Principals, College Presidents, Ministers, Y. M. C. A. Secretaries, Rotary and Kiwanis Clubs, and Home Bureaus made use of this service.

Contrary to the opinion of some, physicians are well qualified to give these popular lectures and that they do so is indicated by the comments received on the forty programs arranged during the month: .

"Many very favorable comments from those present. He gave a practical and interesting talk."

"Dr. H. has his material well in hand and presents it in an effective and interesting manner."

"Very good talk."

"Splendid talk. Everyone very interested. Have heard many speak about the lecture."

"Very valuable talk."

"His talk was to the point and just what we wished. It brought results and an assembly talk before high school students is being arranged."

#### SCIENTIFIC SERVICE:

19—Speakers were scheduled for scientific meetings of county medical societies. This service is offered to all county societies and is being used every month by some secretaries.

#### RADIO:

22—Ten minute health talks were given from Chicago radio stations. Although no announcement is made that copies of talks are available, a good many requests came in for papers that were read during November.

#### PRESS REPORT:

- 336—Articles to newspapers using regular service.
- 20—Articles to newspapers using monthly service.
- 180—Press articles to Chicago libraries for bulletin boards.
- 256—Press articles to Downstate libraries for bulletin boards.
- 4—Press articles to Red Cross Headquarters in Chicago.
- 4—Press articles to Central Branch Y. W. C. A. in Chicago.
- 39—Releases to papers about 8th Councilor District meeting.
- 63—Releases to papers about Princeton Medical Meeting.
- 4—Releases to papers about Calumet Branch meeting.
- 8—Releases to papers about Englewood and Stockyards Branch.

4—Releases to papers about North Shore Branch Meeting.

71—Releases to papers about 9th and 10th Councilor District Pediatrics Meeting.

57—Releases to papers about LaSalle County Medical Meeting.

56—Releases to papers about Chicago Medical Society Meetings.

Press articles were written and approved on the following subjects:

Are Glasses Actually Necessary?

The Don'ts of a Reducing Diet.

The Skin in Cold Weather.

Importance of Play.

#### SPECIAL SERVICE TO COUNTY MEDICAL SOCIETIES:

76—Postal card notices to doctors of Lawrence, Richland, Jasper, Clark and Crawford counties about medical meeting at Robinson.

260—Notices mimeographed for the Woman's Auxiliary.

295—Notices for LaSalle County Medical Meeting.

448—Postal card notices for 9th and 10th Councilor Pediatrics Meeting at DuQuoin.

260—Postal card notices re Medical Economics Meeting at Pontiac.

250—Sheets of mimeographing for Illinois State Woman's Auxiliary.

Special publicity given popular meetings sponsored by the Chicago Medical Society:

120—Letters and announcements to Cook County ministers.

83—Letters to doctors, enclosing ten announcement cards.

47—Libraries furnished announcements for posting.

80—Hospitals furnished with the announcement.

24—Notices sent to Chicago industries.

891—Announcement cards sent to Women's Clubs and Parent Teacher Associations.

22—Notices to Y. M. C. A.'s, Y. W. C. A.'s, and organizations.

45—Notices to clubs.

250—Cards to the Woman's Auxiliary.

The Educational Committee has endeavored to give its service wherever organized medicine might be needed. Radio time has been given for promoting proper education of the facts concerning vivisection, material is being collected which will be of value to the doctor or layman studying the question of health insurance.

Many requests are coming from all over the state for materials and when the Committee is unable to supply what is needed, the American Medical Association library gives valuable help.

A Medical Officer of one district of the American Legion is planning to have brief talks on timely medical subjects given at the monthly meetings of the various Posts. The Educational Committee office is supplying the material to the men who will give these talks.

Respectfully submitted,  
JEAN McARTHUR, Secretary.



## Original Articles

### DIAGNOSIS AND TREATMENT OF INFECTION OF THE UROGENITAL TRACT IN CHILDHOOD

ISAAC A. ABT, M. D.

CHICAGO

This subject of urinary infections was assigned to me by the program committee. I am sure that everyone here is well informed about urinary infections in childhood and is well acquainted with the extensive literature on the subject. Consequently, I shall try to be brief and recall to you a few episodes concerning this subject, which I have collected in the course of the years.

We must not think that urinary infection in childhood is a new subject. Rayer, in 1837, described pyelitis in an early publication. It was fully discussed as far back as 1844 in the first edition of the text-book of Barthéz and Rilliet.

It will be recalled, too, that these authors were impressed by the writings and teachings of Bichat, Laennec, Bretonneau, Trousseau, and Billard. Barthéz and Rilliet adopted the pathological and clinical precepts of these masters, and wrote an excellent book, which contains a chapter describing pyelitis in children. A study of their reported cases shows that the disease was caused for the most part by renal and vesical calculi.

We next find pyelitis in children receiving attention in Gerhardt's "Handbuch der Kinderheilkunde," which was published in 1876. Alois Monti, who was a student of Wiederhofer, and later a professor of pediatrics in Vienna, contributed a paper on the subject to this encyclopedia. Monti described the clinical findings and also found that pyelitis was frequently the result of irritation caused by calculi in the urinary tract.

Hüttenbrenner, also a student of Wiederhofer and a contemporary of Monti, and attending physician at the Carolinen Kinderspital in Vienna, recognized pyelitis and described it in his text-book and in special articles. In 1876 he gave a classical description of the disorder.

Hans Kundrat, the pathologist, a contemporary of Hüttenbrenner, wrote in a special paper that pyelitis in children was a more frequent

disease than was commonly recognized. Unger, who was an assistant of Henoch in Berlin, also wrote on the same subject, and Hirschsprung called attention to this disorder of childhood in 1893. The following year Theodore Escherich gave the subject a new meaning when he discovered that it was most often caused by the colon bacillus, and you will recall that he discovered this organism. He first described the disease under the caption of colicystitis. He thought it was frequent, that it occurred most often in little girls, and that the ailment usually ran a febrile course.

Finkelstein, in 1895, made some pathological studies on babies who had suffered from pyelitis and pointed out that the pelvis of the kidney was inflamed and that secondary infection of the kidneys was not uncommon.

The first published report of Escherich (1894) in the "Jahrbuch für Kinderheilkunde" attracted wide attention and case reports were published in all parts of the world. It was found that the disease had been previously overlooked, and that it was of frequent occurrence. Indeed, at this time many a physician discovered the disease in his own community.

That is an important phase in the progress of medicine. A physician in the community, or in a wider territory, pays attention to a certain disease, even if he was not the original discoverer, studies its literature and its pathology and symptomatology, and then he popularizes the knowledge about that disease among the physicians where his influence is exerted. That is what happened with reference to pyelitis.

Impressed by the writings of Escherich, at that time of Graz, John Thomson of Edinburgh, and other distinguished clinicians, physicians everywhere began to search for patients suffering with this disease. Up to this time the urine of infants and young children was examined only in exceptional cases. It was thought difficult or even impossible to collect the urine from these little patients.

The first patients with pyelitis that we encountered were children suffering from marasmus, or those who had gastro-intestinal disorders and were dehydrated. We found not a few babies in this group who were suffering from fever and pyuria.

Czerny's assistant, Dr. E. Schiff, in his classical article on exsiccosis or dehydration, called

Read before Section on Pediatrics, at annual meeting of Illinois Medical Society, Springfield, May 15, 1934.

attention to the fact that both in his experimental work on animals and in his clinical observations on dehydration in babies, pyelitis occurred with remarkable frequency. This is probably a result of the lowered resistance of the dehydrated babies and the readiness with which they become infected.

In the same way, infectious processes in the remote parts of the body may be associated with pyuria. You will all recall, from your own experience, cases of acute respiratory infection, as well as furunculosis, and dysentery which have been associated with severe pyuria. I am particularly reminded of the influenza epidemic of 1917 and 1918 in which many babies, in addition to the influenza infection, showed quantities of pus in an acid urine. This was particularly true of premature and delicate babies suffering from influenza.

To illustrate some types we encountered, I shall recall a few case histories. The first that comes to my mind is a four months old baby, a doctor's daughter. The baby was suffering from a continued high temperature. She had received a good deal of calomel and other physic, and had by the time I saw her a profuse diarrhea. We immediately obtained some urine by catheter and found that it contained not only pus but also a few blood cells, hyalin and granular casts. This baby, as so frequently happens, suffered not only from an inflammation in the pelvis of the kidney, but she undoubtedly had a pyelonephritis. We find most frequently in infectious and inflammatory processes that nature does not respect rigid lines like those on a geographical atlas, but that inflammation spreads to adjacent parts. And so it is that infection of the pelvis of the kidney may be associated with inflammation of the kidney itself. It has been maintained that most cases of so-called pyelitis involve sooner or later the parenchyma of the kidney.

This child, after having been severely ill for a number of days, improved materially, and the blood and casts disappeared from the urine, though the pyuria continued for many weeks.

I have occasionally seen children in whom the pyelitis was ushered in by nervous and meningeal symptoms. I recall a child of three months who was brought to the hospital with high fever, convulsions, and rigidity of the neck. Her urine, which was promptly obtained, contained pus cells and a few casts. In 24 hours the nervous symp-

toms had disappeared, though the fever and pyuria continued.

Another infant of 5 months fell ill suddenly, with high fever, convulsions, and rigidity of the neck. She was stuporous and we feared that she was suffering from meningitis. A lumbar puncture was performed: the fluid was clear, contained a minimal number of cells and no globulin. When the urine was examined the following day, it was found to be highly acid and thick with pus. I presume that these cases are not rare, and that they have occurred in everyone's practice. I merely cite them to show how misleading the symptoms may be at the onset of pyelitis.

I recall several patients where the disease was characterized by frequent recurrence and chronicity of the attacks. One little girl baby of seven months presented the usual symptoms of fever, pyuria, anorexia, vomiting, and abdominal pain. The fever was irregular and of the septic type. She had frequent recurrences, and acute infection of any kind would light up a fresh attack. Even as an older child, she was troubled with pyuria at intervals, perhaps less frequently than during the first years of life. Violent or prolonged physical exercise would sometimes bring on an attack in this little girl. I recall that during her eighth year she went on a roller skating debauch, traveling to the park and back, a distance of about four miles. She returned home hot and tired, and the following day had fever with marked pyuria. But she survived it all. She is now the mother of two children, had normal pregnancies and labors and seems to be in good health. I stress this last point because it has been so frequently stated that the pyelitis of pregnancy can frequently be traced back to infantile and childhood pyelitis.

I recall another little girl baby, also a doctor's daughter, who had repeated attacks of pyelitis during infancy, with recurrences up to the fifth year. She had all of the usual symptoms, and in addition, as I recall it, a pallor, which was marked during the recurring attacks. All of you remember that pallor is one of the frequent and striking manifestations of acute and protracted pyelitis. This little girl to whom I have just referred has also grown to womanhood. She is a tall, robust, healthy woman and the mother of three healthy boys. Her pregnancy and parturition in each case was normal.



I saw a little boy baby, less than six months of age, who upon examination presented a mass on the right side in the lumbar region. The mass was plainly palpable, readily movable, and its position and outline suggested an enlarged kidney. This child was emaciated, extremely pale, had a septic type of temperature, vomited, and the urine contained a great quantity of pus. The several consultants who had examined the baby remained with him for several hours until he died. An autopsy was performed and it was found that the right kidney was very much enlarged, though there were no congenital malformations in the kidney, ureter, or bladder, which could be discovered. The kidney itself was full of abscess cavities and the parenchyma of the organ was almost destroyed. The left kidney was also involved, though to a much less degree.

I should also mention in this connection that during the earlier days, when typhoid fever was widely prevalent, pyelitis due to bacillus typhosus was not of infrequent occurrence and sometimes protracted the disease, frequently constituting the patient a typhoid carrier.

The subject of congenital malformations of the kidney is one which interests every pediatrician as well as urologist. These cases may occur in the new-born as well as in very young infants. My son, Dr. Arthur F. Abt, in association with Dr. Shapiro, reported a severe pyuria associated with high temperature, on the fourth day of life. This infant cried, strained, and seemed to be in pain when she voided. The patient continued to run a septic course with continued pyuria. A catheter passed into the right ureter showed a drip of thick pus. After some study, the right kidney was removed, which showed a right hydro-ureter and pyonephrosis. After this the patient made an uneventful recovery and is living in good health at present.

They report another case, a male child five and a half months old, who also showed cloudy urine, and continued high temperature, with pain on voiding. In this case the right kidney was involved, as in the previous child. A nephrectomy was performed; it was found to be markedly enlarged, and two ureters were present and dissected out to the bladder. The calices were tremendously dilated, the pelvis of the kidney was extremely large. Of the two ureters, one was considerably dilated. This dilated ureter

was tortuous and presented numerous pockets. The ureterovesical valve was competent.

In these two patients the pyuria occurred as a result of congenital malformations, and the symptoms presenting themselves during early infancy depended on developmental errors. In my earlier experience, I frequently discovered, during post mortem investigations, congenital malformations of the kidneys and strictures or reduplication of the ureters.

In one of my early cases a fused kidney presenting a tumor in the median line was associated with persistent fever, pyuria, and finally death.

I have seen diverticula of the bladder give rise to pyuria, as well as dilated or megalo-ureters, and also those that were narrowed by congenital strictures. Sometimes there was a stenosis of the inferior uretral opening, possibly the result of an inflammatory process. I have published elsewhere a series of cases with various forms of renal and uretral malformations.

It seems superfluous to discuss the treatment of pyelitis before a group of well-informed practitioners and pediatricians. Nevertheless, for the sake of completeness, I wish to say a word about the plan of treatment I usually employ. Everyone recognizes the importance of giving these patients an abundance of fluid, by mouth if possible, subcutaneously, intravenously, or by rectum, if necessary. I have already called attention to the fact that E. Schiff found many cases of pyelitis among a large group of dehydrated children, which he studied. He found that this condition improved with increased fluid intake and recovery from the exsiccosis. The administration of alkaline preparations such as the citrates, or the carbonate or bicarbonate salts of sodium or potassium, sometimes leads to decided improvement. Urotropin has usually given me good results, though I am not unmindful of the fact that it may cause irritation and erythruia. As a rule, during infection, I have used small doses, usually 1 grain five or six times daily. This may be combined with appropriate doses of ammonium chloride, though I have seemed to get the best results with a combination of salol and urotropin, using 1 grain of each five or six times daily.

During the acute stage, these patients, like all febrile cases, require rest in bed, though in those in whom the fever has subsided, even if the

pyuria persist, the bed rest should not be protracted over too long a period. Those who are old enough to walk should be allowed to be on their feet, because I believe that a more perfect urinary drainage occurs when the patients are in the erect position.

The ketogenic diet has been suggested in the treatment of these patients, though I have had no personal experience with it. You will recall that it has been recommended by some clinicians and has been reported upon favorably.

Now a last word about the persistent cases of pyuria. Where medical treatment of every kind is of no avail or where there are frequent recurrences with fever, it will be necessary to call urological consultation. In some of these protracted, febrile cases it will be found that a pyelonephrosis is responsible for the protracted pyuria; or a congenital or acquired malformation as well may produce persistent pyuria with septic temperature and emaciation. In these cases nothing is left but radical surgical intervention.

#### DISCUSSION

Dr. Arthur Sprenger (Peoria): I am very much pleased to hear Dr. Abt state that consultation between pediatrician and urologist is frequently necessary. To me that is a very hopeful sign.

You know, pediatric urology is going through its growing-pain stage and is gradually coming into its own.

You are aware, no doubt, that outside of the few systems on pediatrics in which urology is taken up, there is but one volume at the present time by Beer and Hyman of New York City.

The greatest problem confronting the pediatrician is to obtain permission from the family to have a complete urological examination made. And that is particularly necessary in those cases of pyuria with septic temperature who have shown little or no improvement under medical treatment.

These cases should be subjected to a complete examination just as quickly as an adult. The cystoscopic examination is a minor procedure requiring ether anesthesia. There is practically no reaction, a definite positive diagnosis is the result and you know how to direct the case intelligently.

If you have, as Dr. Abt has told you, a surgical condition your diagnosis is quite easily made, particularly in that type where you have obstructive lesions, congenital malformations, etc. And they are not so uncommon. In our experience lesions of this type are seen relatively frequently, and those of you who attend the radiological conference tomorrow will hear a paper by Dr. John Venachen of Peoria with whom I have done practically all of my work, in which he will show slides of congenital malformations in which nephrectomy has been necessary.

In the treatment of infantile pyuria we find that the majority of cases may be treated medically. And when urological examination discloses good drainage the case is immediately referred back to the pediatrician for attention.

The use of urinary antiseptics other than hexamethylene in a urine with a p H of 5.3 or less has been discontinued.

The ketogenic diet stressed by Clark and Helmholtz has been very satisfactory in maintaining an acid urine in the adult but we have found its use quite difficult in the juvenile cases.

The pediatrician and urologist must get together when confronted with a case of pyuria and temperature which shows no sign of abating over a period of several weeks. If urological examination at this time rules out a surgical condition such as renal calculi, urethral valves, etc., you can continue your treatment by acidifying the urine and forcing fluids as Dr. Abt has so ably told you.

The whole matter of treatment is similar to the case given in adults. The pathology with the exception of prostatic enlargement is very much alike. Fibrosis at the bladder neck with a resulting back pressure produces a dilated bladder, ureters and kidneys and the treatment remains the same; viz., removal of the obstruction.

In conclusion it is my firm conviction that many cases with obscure pathology who later on in life require nephrectomy will be cleared up when pediatrician, urologist and roentgenologist work in harmony.

Dr. Joseph Brennemann (Chicago): My introduction to pyuria—I rather prefer to call it pyuria than pyelitis because we are then on surer ground—was a rather painful one and therefore I have always been interested in the subject.

I think it was one of the cases Dr. Abt spoke of that I saw in the first two or three years of my practice when I really was not quite ripe for taking care of a very rich patient. The little female baby in question had several bouts of temperature and in those days it was hard for us to appreciate that babies had anything else than bowels, an idea that has not yet become wholly extinct. We had several consultations that led nowhere. Finally one day the family decided they wanted another consultant and that it might be better to turn the child over to the other consultant. I have always subscribed to the wisdom of such a procedure and I was quite agreeable in this instance, especially as the other man was Dr. Abt. In his nice way, Dr. Abt told me the child had a lot of pus in the urine and that possibly that explained the condition. I think I have never missed one of these cases in my subsequent practice. We generally learn more from our mistakes than from our correct diagnoses.

There is just one thing that I would like to emphasize in discussing Dr. Abt's paper that I think he did not emphasize as much as he would have if he had not been cut short at the end. We used to call all of these cases of pyuria 'pyelitis' and they were practically all restricted to female children during the diaper age and



we thought of them as an ascending infection due to the colon bacillus. We have sort of gotten away from the habit of calling these cases pyelitis because we do not really know whether that is the important lesion or not. Schloss, to my mind erroneously, has said there is no such thing because they have never found a pyelitis at necropsy. The reason for that, of course, may easily be that a child with pyelitis never dies, and that if they die they have usually some more serious infection of the parenchyma of the kidney. It seems to me that we do not see as many of these cases as we used to and that now we see a much larger number of children with a more serious infection of the uro-genital tract. I refer to the type of case that is fairly frequent which occurs in either sex and which, in spite of any ordinary treatment,—and I am not sure that it makes a tremendous amount of difference what that treatment is,—do not get well after a reasonable time. In practically all of those cases we find that there is back of it an anatomical condition, usually a congenital anomaly. We nearly always have two or three of these under consideration and have worked very closely with Dr. Kretschmer in the matter. In other words, if a child with a pyuria does not get well within a reasonable time, a urologist should be called in and usually the trouble will be found in an obstruction of a ureter or in a vesical neck obstruction or in some other congenital anomaly. Especially valuable as simpler procedures are the newer methods of visualizing the urinary tract by the intravenous injection of Skiodan or Neoskiodan. This has illuminated a whole field that before has been dark. We like to watch the urologists a bit because they are apt to think of babies and young children in terms of adults and there are certain distinctly pediatric aspects to these problems. By such team work, however, we feel that in this whole field one gets most gratifying results.

## CHRONIC CICATRIZING ENTERITIS REGIONAL ILEITIS (CROHN)

B. C. CUSHWAY, M. D.

CHICAGO

Study of the medical literature reveals considerable interest in a condition described under the various names of "nonspecific granuloma," "benign granuloma," "infectious granuloma" and "inflammatory tumor of the intestine." These terms cover a multiplicity of pathological lesions, involving both the large and small intestine.

The significance of simple inflammatory tumors of the gastrointestinal tract was pointed out by Moynihan<sup>1</sup> in 1907. He operated on six cases under the mistaken impression they were malignant disease. Clinical and gross appear-

ance supported diagnosis of malignancy, but microscopic section proved them to be non-malignant in character.

In 1908 Robson,<sup>2</sup> discussing abdominal tumors simulating malignancy stated "that the simple inflammatory tumor of the intestine was relatively common and that it was a difficult problem of abdominal diagnosis."

A good account of what they named non-specific granulomata of the intestine was given in 1923 by Moschcowitz and Wilensky.<sup>3</sup> Dalziel<sup>4</sup> described a chronic interstitial enteritis in 1913. The condition was also reported by Mock<sup>5</sup> in 1931. Of the cases reported by Mock, three involved the omentum, three the stomach, one the ileum and three the large bowel, cecum, splenic flexure and sigmoid. More recently Crohn, Ginzburg and Oppenheimer<sup>6</sup> in 1932 have attempted to isolate from the large, non-specific group of granulomata a clean cut entity which they have named, "regional ileitis." Still more recently Harris, Bell and Brunn<sup>7</sup> report a series of cases having the characteristics of regional ileitis for which the term "cicatrizing enteritis" is suggested.

It is upon the report of these two groups of cases, namely, "The Regional Ileitis" (Crohn) and "The Cicatrizing Enteritis" (Harris) that the presentation of this paper is based. There is some difference of opinion as to which terminology is more appropriate. The term regional ileitis would locate a pathological lesion in the terminal portion of the ileum. As these lesions have been reported as occurring in other portions of the small intestine, as for instance, in the jejunum and elsewhere in the ileum the term "cicatrizing enteritis" might perhaps be considered more descriptive. Pathological lesions, having similar characteristics, have been observed involving the cecum and other portions of the colon. In most instances the pathological process was characterized by a chronic proliferative inflammatory reaction in which the most outstanding features were extensive mucosal ulcerations with thickening of the wall and constriction of the lumen of the bowel. The cases reported by Crohn, also by Harris and their associates were, with the exception of one case, characterized by the location of the pathology in the terminal portion of the ileum. As such they present a rather characteristic clinical picture but perhaps not a definite pathological entity.

Read before Section on Radiology at annual meeting of Illinois State Medical Society at Springfield, May 16, 1934.

In at least one of the cases of this condition to be described by the writer a portion of the cecum and the base of the appendix were involved. It would perhaps be more logical to make the report of these cases under the terminology of "cicatrizizing enteritis," Harris.

Defined briefly by the authors mentioned, "cicatrizizing enteritis" or "regional ileitis" is a disease of the terminal ileum affecting mainly young adults and characterized by a subacute or chronic ulcerating and cicatrizing inflammation of all the coats of the ileum. It frequently leads to stenosis of the lumen and is often associated with fistula formation and a tumor mass in the right lower quadrant.

The pathology is most characteristic when confined to the lower ileum. The lesion is marked here by very decided edema and thickening of the intestinal wall, usually with an extensive lymphadenitis in the mesentery and at least a limited amount of ulceration of the mucosa. There is a tendency to perforation, usually not accompanied by peritonitis but causing a local reaction and the formation of a fistula into a neighboring bowel, most often the ascending colon. Microscopically no specific features can be demonstrated. Sections show various degrees of acute, subacute and chronic inflammation.

*Etiology.* The most probable etiological factor is that of infection. The dysentery bacillus has been found in one case observed by Jaffe. It has been suggested that interference with the local blood supply might be a cause, necrosis and low grade infection stimulating in the adjacent areas a reactive reparative process. Infection necrosis and reactive repair proceed hand in hand but the latter eventually predominates with the resultant progressive piling up of granulation tissue until a tumor like mass is formed. These factors may be classified under three headings, first, infections within the gastrointestinal tract or its mesentery, second, extraperitoneal infections, third, trauma due to surgical procedure or extraneous injury.

*Symptomatology.* The condition is usually chronic and symptoms are rather vague. Erratic sorts of colic usually have been reported. Frequent movements of the bowels, occasionally with serious diarrhea. There may be excessive mucus in the movements and occasionally blood. As there is a tendency to obstruction which is

chronic and progressive the signs of obstruction frequently lead to the discovery of the tumor mass with constriction of the bowel at the operating table. Crollin and his associates distinguish four types of this disease, first, acute type, showing signs of intra-abdominal inflammation, second, ulcerating type with symptoms of ulcerative enteritis, third, stenotic type with symptoms of chronic obstruction of the small intestine and fourth, fistulous type with persistent and intractable fistula in right lower quadrant. In type one, before operation, these cases are almost impossible to distinguish from acute appendicitis. Pain and tenderness over the right lower quadrant, with fever 101 to 102 and moderate leukocytosis are present. Type two, symptoms of ulcerative enteritis; there is a history of diarrhea associated with colic like pain around the umbilicus and lower abdomen related to defecation. There is a constant low grade fever present with loss of weight and a pronounced secondary anemia. Type three, stenotic phase, is the type most commonly found. The symptoms are those of a partial obstruction in the small intestine, cramps with attacks of vomiting and constipation, with distention and finally a palpable mass in the right lower quadrant. Type four, fistulous phase; fistula formation is fairly constant in this disease. More commonly the connection is with the sigmoid, next in frequency the cecum and ascending colon. Practically diagnostic of the disease is a fistula in the abdominal wall persisting and appearing after operation for a supposed acute appendicitis and the removal of an innocent appendix. These fistulae may develop months after the drainage operation for a supposed appendiceal abscess. The original wound may heal and the first sign of the fistula is the appearance of an abscess in the wall, which on being opened is found to lead into the intestines.

*Roentgenographic findings.* This condition may be easily overlooked by the competent roentgenologist. It may not be recognized unless clinical symptoms might suggest the presence of this pathology and thus indicate the need of serial fluoroscopic study and films with the barium meal. Such examinations should show delay in the small bowel with stasis and dilatation in the terminal portion of the ileum early in the disease. Later in the stenotic phase there will be definite evidence of obstruction with



stasis of the opaque material and marked dilatation of small bowel loops. There may be definite deformity shown involving the cecum and ileocecal valve. In two of the cases to be reported by the writer, this condition was present. In one, the cecum was perfectly smooth. In some cases the deformity of the cecum may simulate a pressure defect, while in others the defect may be similar to that of a new growth or malignancy. The above findings definitely suggest cicatrizing enteritis. Negative findings with the opaque meal by mouth or the barium enema in the presence of symptoms simulating ulcerative colitis or tuberculosis are suggestive of cicatrizing enteritis. Such negative findings with the opaque enema with clinical features suggestive of colitis and enteritis should suggest the possibility of cicatrizing enteritis and the advisability of making a careful serial roentgenological examination with the opaque meal. The interval studies of the small bowel after the administration of the opaque meal orally will show a definite delay in motility of the meal through the distal end of the small intestine. In the four, six and nine hour observations this delayed motility is usually present, though only in the late or stenotic stages is the delay striking. The milder degrees of stasis may easily be overlooked if the roentgenologist does not have the possibility of this condition in mind. While negative findings with the opaque enema may only give suggestive evidence of this condition, in certain cases the enema may give more definite findings. This happened in one of the cases to be reported here, where the opaque material spilling over from the cecum through the ileocecal valve showed a definite constriction and stenosis in the terminal portion of the ileum. The writer advises serial or interval studies of the small bowel at four, six, nine and twelve hour intervals with the opaque meal given orally, followed by the opaque enema study of the colon, cecum and if possible the terminal ileum.

*Differential Diagnosis.* Cicatricial enteritis must be differentiated from conditions which produce a mass in the right iliac region with diarrhea and fever and low grade or severe obstruction.

1. Ulcerative colitis; usually colitis may be recognized by roentgenologic studies with the opaque enema. The spasm deformity of the portions of the colon involved and obliteration

of haustra are quite characteristic of colitis. In cicatricial enteritis changes are usually proximal to the ileocecal valve. A mass is rarely palpable in colitis.

2. Ileocecal tuberculosis; this is probably rare as a primary process and should be easily differentiated because of the deformity caused by spasm associated with tuberculosis. In cicatrizing enteritis there is rarely spasm shown associated with the cecum. Only in occasional cases is the cecum deformed.

3. Typhlitis or cecitis; usually cause more deformity and spasm of the cecum than is present in cicatrizing enteritis.

4. Lymphosarcoma, intestinal or mesenteric tuberculosis and Hodgkin's disease may simulate cicatrizing enteritis because of palpable mass and obstructive symptoms.

5. Actinomycosis of the ileocecal region with fistula formation to the external abdominal wall should be considered although rarely found in this region.

6. The differential diagnosis between cicatrizing enteritis and malignancy of the terminal ileum, ileocecal valve or appendix may give considerable difficulty and may not be possible even at the operating table. It is usually only made by microscopic examination of tissue.

*Treatment.* Medical treatment is purely palliative, symptomatic and supportive. Surgical resection of the diseased segment of the small intestine and of the ileocecal valve with the contiguous cecum is practically the only treatment.

Crohn, Ginzburg and Oppenheimer report restoration to complete health in thirteen out of fourteen cases as a result of radical resection. A. A. Berg of New York who has had considerable experience in the surgical treatment of this condition advocates resection with ileocolostomy as the operation of choice. The writer in this presentation reports two cases successfully treated by radical resection.

*Case 1.* G. K., white female, single, age 25 years, admitted to Evangelical Hospital, November 20, 1933, had been having symptoms of chronic abdominal trouble for three to four years. Had appendix removed November 2, 1932. Felt slightly improved after removal of appendix but continued to run a temperature of 99.6 or slightly higher. October, 1933, had attack of pain in right lower quadrant. Was nauseated and vomited at intervals for two or three days. Had dull pain and tenderness in right lower quadrant, since, with two attacks of nausea and vomiting. Last attack November 16, 1933. Lost eight pounds in last two weeks.

Examination discloses operative scar in appendix region with definite tenderness just outside of scar in right lower quadrant. Clinical diagnosis, adhesions from appendiceal scar causing partial obstruction, possible

torsion of medial cecal wall. Serial films at six, nine and twelve hour intervals after the ingestion of the opaque meal orally show definite stasis in the terminal portion of the ileum with dilated loops of small bowel,



Figure 1. Case 1. Roentgenogram at nine hours, showing stasis and dilatation of terminal ileum with defect in cecum, marked distension of coils of terminal ileum.



Figure 2. Case 2. Roentgenogram of barium enema, showing defect in cecum and no filling through ileocecal valve into terminal portion of ileum.

abscess or a tuberculous condition in right lower pelvis.

Roentgenographic studies show on fluoroscopic observation tenderness to pressure over the cecum and ileocecal region. Immobilization of the cecum with dis-

narrows terminal ileum and deformity in medial portion of cecum suggesting a pressure defect. Interpretation of roentgenological findings: Inflammatory exudate in ileocecal region or possible new growth. Patient

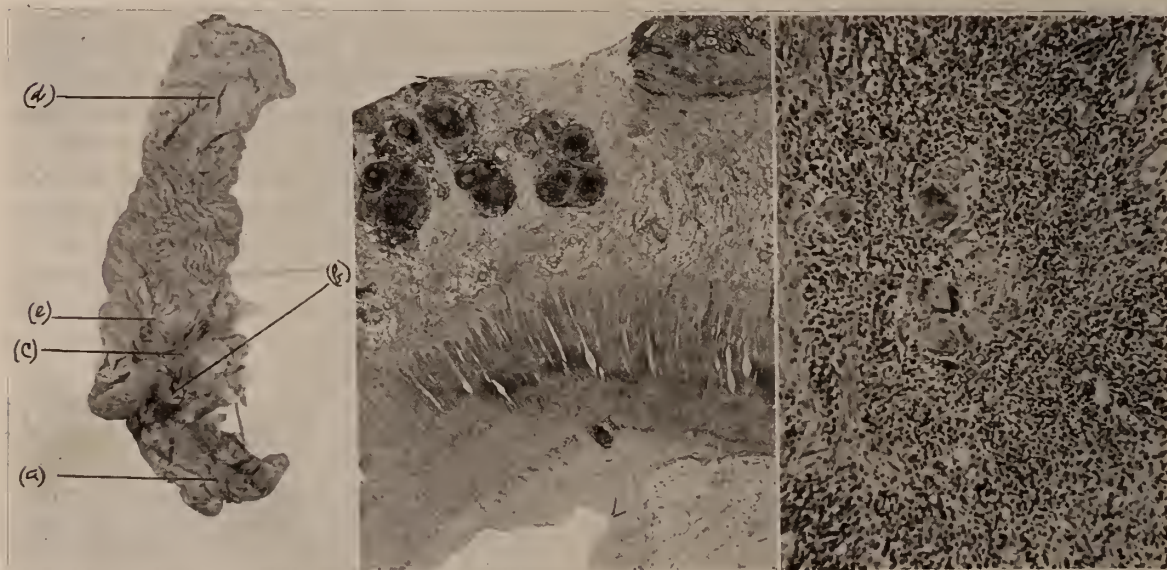


Figure 3. Case 1. Photograph of the gross specimen, showing stenosis of ileocecal valve. Thickening of walls of terminal ileum and cecum. (a) Terminal ileum (b) Ileocecal valve (c) Glass rod through lumen of valve (d) ascending colon (e) Cecum.

Figure 4. Case 1. Photomicrograph of section of terminal ileum near ileocecal valve showing thickened wall and chronic inflammatory changes.

Figure 5. Case 1. Photomicrograph of granulomatous lesion in ileocecal valve with giant cells resembling tuberculosis.



was operated on, November 27, 1933, with a diagnosis of probable tuberculosis of ileocecal region or carcinoma of the cecum and ascending colon. At operation the terminal portion of the ileum was found to have edematous, thickened wall with a definite narrowing of the lumen. There was marked rigidity and hardening of the ileocecal valve. Many enlarged pericecal lymphnodes were found with many adhesions around the cecum and terminal ileum. The thickening of the walls of the ileum together with the induration around the ileocecal valve and medial wall of cecum simulated the appearance of a tumor. A resection of the cecum, a portion of the ileum and the ascending colon with anastomosis of the ileum and the colon was done.

Pathological report, by P. A. Delaney, M. D., of Englewood Hospital:

Gross. Specimen consists of a small portion of terminal ileum, cecum and ascending colon. There is a marked stenosis of the ileocecal valve, the opening barely admitting a lead pencil. There is a healed appendiceal stump, with small depressions in the overlying cecal mucosa, under which the wall is thickened and indurated, apparently from fibrous connective tissue; this induration involves the ileocecal valve region. The terminal ileum is markedly thickened, in contrast 2-3 times thicker than the cecum or the colon. The pericecal lymphnodes are enlarged from congestion and edema.

Microscopic. Section removed from the terminal ileum near the thickened ileocecal valve wall, micro-

definite increase in its smooth muscle elements. There is an average number of lieberkuhn crypts. The muscularis mucosa is prominent. The lymphoid follicles are prominent with definite hyperplasia of their germinal centers.

There is no evidence of carcinomatous changes in any of the tissue described above. The condition is a perfect picture of what has been described as "Regional ileitis" by Crohn et al, in the Oct. 15, 1932 issue of the J. A. M. A. and in the Nov. 1933, Surgery, Gynecology and Obstetrics by Franklin I. Harris and his co-workers. Sections especially treated are negative for Spirochetes and for acid-fast bacilli.

The results of operative treatment were excellent. The patient made an uneventful recovery and at the present time is enjoying excellent health with no abdominal symptoms.

Case 2. M. M., white female aged 27 years, married, no children. Admitted to St. Bernard Hospital January 14, 1933. States that for the last two years has been suffering with a sense of fullness in the epigastrium with flatulence. Condition became more severe four months previous to entering hospital. At this time attacks of intermittent sharp pain accompanied by vomiting were present. Physical examination shows entire abdominal wall rigid and slightly tender. Pain on palpation over epigastrium and right lower quadrant. There is a scar in the appendix region following appendectomy three years ago. Clinical Diagnosis, chronic obstruction near ileocecal junction.



Figure 6. Case 2. Roentgenogram showing stasis and dilatation of coils of terminal ileum at twelve hour period of study with a narrow constricted ileum at ileocecal valve.



Figure 7. Case 2. Roentgenogram showing barium enema passing through ileocecal valve into ileum in a tiny stream. (a) ileocecal valve.

scopically represents acute and chronic inflammatory changes involving all of the wall layers but most marked in the mucosa and the submucosa. There is associated definite thickening of the submucosa from fibrous tissue hyperplasia, and of the muscularis from

Roentgenographic studies show definite stasis in terminal ileum with a narrow constricted ileum at ileocecal valve. Tenderness and fixation observed during fluoroscopic study in ileocecal region. Contrast enema showed slight regurgitation through ileocecal valve dis-

closing definite stenosis of ileocecal valve and terminal portion of ileum. Interpretation of the roentgenographic findings; Low grade obstruction in ileocecal region, probably the results of adhesions in previous appendix pathology. Patient was operated on January 28, 1933. Pre-operative diagnosis; obstruction in ileocecal region. Operation disclosed a large mass involving the distal terminal portion of the ileum with dilation of ileum proximal to mass. A resection of the terminal portion of the ileum with cecum and a portion of the ascending colon was done with anastomosis between small bowel and colon.

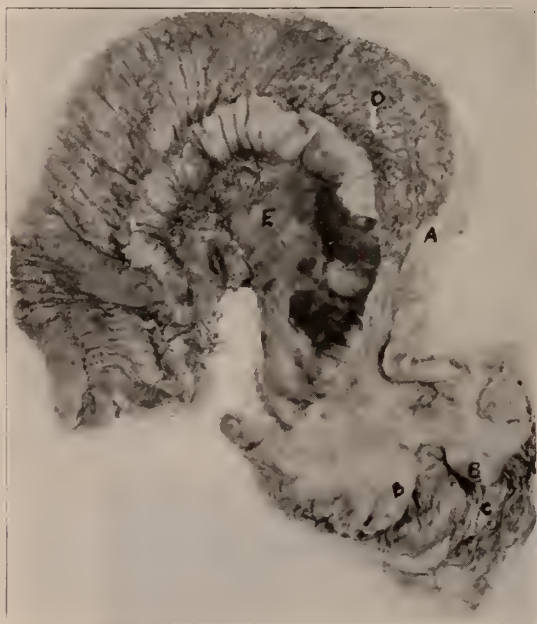


Figure 8. Case 2. Photograph of gross specimen. (a) shows marked thickening of wall of ileum at proximal end of strictured portion (b) edge of opened ileocecal valve (c) cecum (d) proximal ileum with edema and numerous tiny ulcerations of mucous membrane (e) mesentery with enlarged lymph glands, and peritoneal hemorrhages due to surgical trauma.

Pathological report by C. C. Guy, M. D., St. Bernard's Hospital:

This specimen consists of resected bowel, including 34 cm. of distal ileum and its attached mesentery and 6 cm. of cecum. The wall of the distal ileum is markedly thickened and firm, but not stony-hard, for a distance of 6 cm., beginning 2.5 cm. from the ileocecal valve. In this area the lumen is definitely constricted. The walls here are pale grey-pink, and the mucosa is absent except for a few remaining patches. The ileum gradually dilates proximal to the constricted portion. The lining of this part of the ileum is a dark purple-red, and granular from enlarged lymph follicles, at the apices of many of which are tiny ulcerations. The walls of the ileocecal valve are indurated, but the mucosa is not ulcerated, and the valve is patent. The appendix is absent from the cecum, and its base is represented by a small, puckered scar. The lining mucosa of the cecum is some-

what edematous, with numerous petechial hemorrhages and tiny superficial ulcerations. The fat of the mesentery is moderately firm and yellow, and embedded in it are three purple, wet, firm, homogeneous lymph glands, up to 1.2 cm. in length.

Sections show a marked chronic inflammatory process in the walls of the ileum. The mucosa is altered by scarring, granulation tissue and infiltration of leukocytes and round cells. The submucosa is thickened and scarred, with enlarged lymph follicles, showing no distinct germinal centers. The muscularis is hypertrophic, and the individual bundles of muscle are sepa-

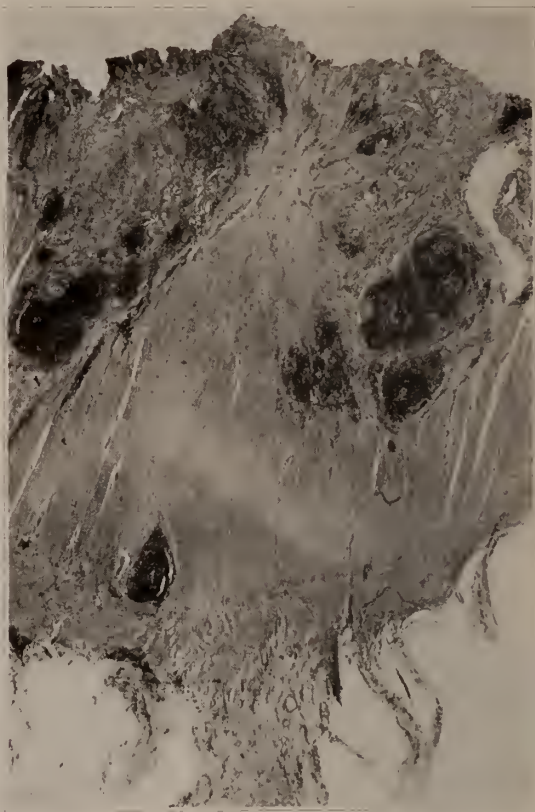


Figure 9. Case 2. Photomicrograph of tissue from terminal ileum, showing ulceration and marked lymphoid tissue.

rated by edema and cellular infiltrations. Similar collections of cells with edema and granulations alter the serosa. There is no evidence of malignancy or tuberculosis.

Diagnosis: Chronic inflammatory (non-specific) Stenosis of the Distal Ileum.

The operative results were good. The patient made an excellent recovery and is well at the time of the present writing.

Case 3. S. R., white, male, aged 50 years, married. Admitted to the Evangelical Hospital, December 10, 1933. Complaints of pain in right lower quadrant during the past two months. Temperature 100. Pain aggravated by a rather persistent cough. Patient has lost a small amount of weight during the last month.



During the last two weeks patient noticed a mass in the right lower quadrant when coughing. Physical examination shows evidence of slight abdominal distention, tenderness and rigidity lower right quadrant, round mass size of grapefruit palpable in right lower quadrant.



Figure 10. Case 3. Roentgenogram at twelve hour study, showing stasis with dilated coils of terminal ileum with area of constriction near cecum, also defect in cecum.

this condition best. Three cases have been reported, all showing rather characteristic clinical symptoms. Two of these cases have been proved by definite pathological findings.

The third case reported is doubtful as to



Figure 11. Case 3. Roentgenogram of barium enema study, showing obstruction of cecum with defect in filling and nothing passing through ileocecal valve.

Roentgenographic studies show evidence of low grade obstruction at terminal portion of ileum. Definite deformity with filling defect involving the cecum and terminal ileum. Cecum, ileocecal region and terminal ileum fixed and tender. Interpretation: Obstruction at terminal ileum with inflammatory exudate or neoplasm involving cecum. Exploratory operation was performed disclosing a large mass involving cecum, ileocecal region and terminal ileum. The visceral peritoneum was edematous, thickened and adherent to the mass. Patient's condition did not justify resection and death took place a short time later. In most respects the clinical symptoms and in some respects the roentgenological findings were similar to those found in cases 1 and 2 and are at least suggestive of the same type of pathology.

If the condition was a malignancy and not a case of cicatrizing enteritis at least this case demonstrates the difficulties of diagnosing this lesion.

#### SUMMARY

A brief review of the literature of so-called "infectious granuloma" together with the more recent reports of this condition under the name "Regional Ileitis" and "Cicatrizing Enteritis" has been presented. In view of the reports made by various authors covering these conditions and also the experience of the writer, it would seem that the term "Cicatrizing Enteritis" describes

pathological classification but showed the clinical and roentgenographic findings of "Cicatrizing Enteritis." The writer believes this pathology may occur with a fair degree of frequency. The diagnosis can only be made pre-operatively from roentgenological studies.

Crohn, Ginzburg and Oppenheimer, in isolating this condition from the confusion of benign inflammatory lesions have splendidly demonstrated a new disease entity. Harris, Bell and Brunn have further clarified the situation by suggesting what seems to be a more descriptive term. Clinically the disease occurs mostly in young adults with symptoms of ulcerative colitis. Often these cases may be mistakenly operated on for appendicitis. The disease eventually leads to obstruction of the small bowel with characteristic symptoms of obstruction. The physical findings are those of a tumor mass in the region involved with quite commonly the formation of a fistula. There is no definite known etiology. The pathology is constant both macroscopic and microscopic. The disease is benign and is most commonly found in the terminal ileum.

It is hoped by this report to stimulate an interest in this pathology so that the roentgenologist will be on the alert and ready to recognize this condition.

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### DISCUSSION

Dr. Robert A. Arens, Chicago: I should like to bring out two points. I had the pleasure of going over Dr. Cushway's paper and find much in it to commend.

He mentioned that two of his cases were postoperative appendectomies. We have many cases, at least I see them frequently, in which the appendix has been removed, and the symptoms persist, also, mostly in younger people. We have found in many of these cases a small patch clinging to the cecum, an area which we have felt was a small ulcerated area, or so-called post-operative cecitis, which gives all the signs and symptoms of the previous pathological appendix.

That brings me to the second point, and that is I believe that most of us have practically discontinued looking for small intestinal pathology, due to our set-up, where we very frequently take primary gall-bladder films, or where we do a cholecystogram and find out whether there is a presence or absence of stones, and then make a gastrointestinal study. We find at the end of the day that we do not have time enough to observe the barium in the small intestine, particularly in the region of the terminal ileum.

Dr. Cushway has called our attention to the observation of five, seven and nine hours. Possibly that should be continued beyond that point. The way the average radiologist is working today most of us overlook that time period.

I feel that I have been very fortunate in hearing this paper because it is just going to make me go back and work that much harder on the terminal ileum in the lower right quadrant.

Dr. Harry Olin, Chicago: I am afraid that Dr. Cushway and Dr. Arens have covered this subject so well there is very little left for me to say. I will just summarize with a few notes that I made, as I had the good fortune of obtaining Dr. Cushway's paper some time ago.

This paper is not only instructive and interesting, but very timely. Dr. Cushway has covered the ground exceptionally well and is to be complimented for this excellent thesis. Chronic inflammatory conditions always will puzzle the clinician and roentgenologist, and any new light shed on this atypical syndrome is very welcome at this time. Two important considerations are necessary to bear in mind if the roentgenologist and clinician are to recognize this condition. First is a

painstaking careful history in which due note of a previous operation or operations may be an influencing antecedent. Secondly, as has been emphasized, a careful serial roentgenologic examination should be made to include an opaque meal and barium enema. For practical purposes the location of the mass in which is produced the cicatrizing process determines the region and structures involved. In the greater number of instances only the microscope will reveal the true diagnosis, although malignancy is probably the most common suspicion. Roentgenologically in the majority of instances the signs and appearance are similar and it becomes impossible to differentiate, although the history however may be of much value to help to decide the diagnosis.

Location: For practical clinical purposes, one may classify lesions in the upper and lower intestinal tract, and those in the vicinity of the ileocecal valve; lesions however may occur at any intermediate point.

Upper Intestinal Tract: Perforated gastric ulcer, ulcerating gall bladder and pancreatic lesions are the most frequently associated with this condition. More rarely still, an ulcerating carcinoma will perforate into the jejunum forming a natural gastroenterostomy, such as occurred in one of my cases and which was reported in the *American Journal of Roentgenology*, November, 1927. Tumors of the abdomen, ulcerating lesions of the small intestines and colon also play their part as etiological factors. Pathology in the vicinity of the gall bladder, pancreas, and omentum also must be included as predisposing factors. Occasionally a gall stone will produce an ulcerating lesion and in the process of repair, a cicatrizing mass will be developed, producing deformity or stenosis either in the pylorus, duodenum, or both. To me it is astounding that duodenal ulcers, the most common of all lesions, rarely produce a cicatricial enteritis.

In the region of the ileocecal valve, ulcer of the intestine is probably the most common preexisting lesion. Occasionally a tumor in the terminal ileum or cecum may cause obstruction or ulceration and even produce a fistulous tract, eventually forming a pathological anastomosis. One must keep in mind malignancy, tuberculosis of the cecum, neoplasm, either intra-luminal or extra-intestinal, Hodgkin's disease, the leukemias, and syphilis. Just what the duration of the inflammatory stage is, offers difficulty in the greater number of cases, as the cicatrizing lesion produces symptoms when the process is far advanced. Intestinal parasites may sometimes simulate a cicatrizing mass or produce one, if the ulceration has been persistent and over a long period of time. Complications of appendicitis only have to be mentioned to be considered as a possible etiological factor.

In the lower intestinal tract, neoplasm ulcerating into the lumen of the bowel always is a condition worthy of consideration since one has to establish whether or not the inflammatory mass is malignant. Adhesions resulting from any cause, whether infection or trauma, invariably give us difficulty. Again the court of last resort may be the microscope. Polypi of the colon or ileum and diverticuli sometimes may give rise to the formation of an inflammatory mass once infection



begins, but these conditions as a rule do not afford great difficulties for recognition. To summarize, a careful history is of inestimable value to the clinician and equally intensive should be the roentgenological study, especially at the period of time suggested by the history and the location of the mass.

Dr. B. C. Cushway, Chicago: I think the subject has been pretty well covered. I wish to thank the discussors for their interesting discussion. I might stress, perhaps, the importance of the serial studies as brought up by Dr. Arens, and, of course, the importance of the history, and the rather typical sequence of the history and clinical findings.

The condition is most typical and probably will be easier to recognize roentgenologically when located in the lower right quadrant involving the terminal ileum and perhaps the ileocecal valve. This condition should be suspected after appendectomy where there is a persistent fistula.

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### PHYSIOLOGICAL EFFECTS OF VITAMIN DEFICIENCIES AS SUMMARIZED BRIEFLY FROM RECENT AND AUTHENTICATED RESEARCH EXPERIMENTS

MILDRED ONCKEN, M. S.

CHICAGO

In the vitamin field, intensified research activity yields startling revelations and extraordinary progress. Some idea of the import of this statement may be had from the fact that during the last year alone the literary codex of this newly unfolded phase of chemistry has been augmented by more than 1,000 authenticated, scientific articles, or something like three contributions per diem. In the aggregate, the message of this documentary mass is both momentous and marvelous; even though a large part of this continually appearing literature treats merely of purely confirmatory work, the actual and vital function of which is to support and to strengthen results really previously well-established.

Salient among these corroborative findings is the increasing accumulation of *determinations of vitamin distribution in numerous classes of food-stuffs*.

Anything like an equitable compendium of the current vitamin exploration area, and scope of achievement is scarcely compatible within the limits of this necessarily brief syllabus of progress.

Abridging the situation as fairly as possible however, attention is called to these seemingly indisputable and well verified facts:

*Vitamin D*, "the antirachitic vitamin." Now, some emphasis is laid on the addition of Vitamin D to the milk supply. This may be done either by direct irradiation of the milk, or by the more certain method of adding definite biologically assayed quantities of synthetic Vitamin D or Vitamin D concentrates secured from natural sources, mainly, cod liver oil. Such practice is increasing at a very rapid rate. Further it extends to foodstuffs other than milk and in rich variety.

*Vitamin E*, "the Sex Vitamin." Not to the ant, but to the bee have the chemists gone for light upon this substance. From the "royal jelly," through consumption of which the class of bee known as a "worker" becomes a "queen bee" proved first aid to the research worker.

Now Hill and Burdett proposed the romantic suggestion that this *peculiar and significant property of "royal jelly" is due to its high Vitamin E content*.

*The positive identification of Vitamin E in "royal jelly" has been confirmed.*

Further, concentrated and concrete research that though incomplete, is well under way, suggests emphatically, that to this sex Vitamin, this powerful Vitamin E, belongs another potent clinical role, *that of predetermining sex*.

Experiments with rats show that the mother rats give birth to litters in which the predominance of either males or females bears direct ratio to the sparse or the overabundant supply of Vitamin E to the parent throughout the period of gestation. Apparently hypo-vitaminosis or a sparse supply in the case of Vitamin E tends to produce male offspring, just as hyper-vitaminosis or an overabundant supply in the case of Vitamin E tends to produce female offspring.

The now familiar report of Vogt-Moller in the *London Lancet* of the cases of two women, each of whom after four or five consecutive miscarriages were treated with Vitamin E, and subsequently each produced a live child, has been followed by a rich accumulation of authoritative evidence attesting action of this nature by Vitamin E upon human beings.

Certainly a vitamin demanded imperatively for the control of sex and sex functions in so many lower animals, as is Vitamin E, must play a definite counterpart in the human economy.

*As to the offspring themselves, the young from Vitamin E surfeited mothers are more intelligent*

and keen than are those from mothers deprived of Vitamin E to the point where the young are just born. In this respect, Vitamin E exerts an action rivaling that of Vitamin B.

Vitamins E, Vitamins B (and G) hold rich reward for research. Of interest and import are summarized reports of the ability shown by rats to learn the way through a series of complex passages and blind alleys—the so-called “maze” for laboratory tests.

Elaborate preparations were made for these experiments. To begin with: 1. Wheat germ from which the oil was completely extracted was found by test to be free from Vitamin E but rich in Vitamin B (and G):

2. Contrariwise, the oil extracted from the germ was found to be free from any appreciably detectable quantity of Vitamin B (and G) but rich in Vitamin E.

Hence extracted wheat germ served as the source of Vitamin B in the tests; while extracted wheat germ oil served as the source of Vitamin E.

Accurate determination was made of the minimum amounts of each of these Vitamins demanded by the pregnant rats in order to insure the birth of the young and in the case of Vitamin B to extend this insurance to the point of preventing maternal abandonment or destruction of the litter.

Then division into five groups was made of the pregnant rats under test. Group I received the minimum allowable amount of Vitamin B; Group II, the minimum allowable amount of Vitamin E; Group III, a liberal amount of Vitamin B; Group IV, a liberal amount of Vitamin E; Group V, the standard “normal diet.”

Once the young were born, the respective mothers were transferred from groups I, II, III and IV to the same “normal diet” as had been furnished the animals in Group V, who continued on this diet after the birth of their litters as they had done previously. All the young were weaned after approximately 28 days. Up until they were 70 days old all the litters received a standard normal stock ration. Then the “learning trials” were conducted. The incentive to learn was hunger. Reward for learning was the finding of food. In the table of results herewith presented measurements made included the 1. number of trials necessary to learn the way through the maze; 2. number of errors; 3. num-

ber of retracings of route; 4. time spent going through the maze without error.

TABLE I

Measurements of learning ability (maze test) of rats born from Vitamin B and E depleted, and from Vitamin B and E surfeited mothers during the gestation period, only.

Group	Treatment	Pups	Trials	Errors	Retracings	Seconds
I	B depleted ...	38	72	186	50	3459
II	E depleted ...	42	79	198	53	3720
III	B surfeited ..	44	53	121	34	1916
IV	E surfeited ..	39	49	118	32	1873
V	Normal .....	45	56	123	36	2087

From this it can be observed readily that the effects are similar upon the young when, during gestation their mothers have suffered from Vitamin B or Vitamin E depletion; further that these effects are both more lasting and somewhat more pronounced in the case of E depletion than in the case of B depletion.

*Pups reared from mothers who had received abundant Vitamin E during pregnancy showed the greatest intelligence and keenness.*

Now Vitamin B has more to do with appetite urge than it does with sex urge, and Vitamin E has more to do with sex urge than with appetite urge. This table would prove that a somewhat greater impairment of the “learning” faculty results in the young when the mother is sex-starved rather than appetite-starved in her Vitamin ration.

As to infants, at this writing, practically nothing is known as to their requirements of either Vitamin B or Vitamin E. It has been established however that in both these Vitamins that *milk is relatively poor.*

For the normal functioning of the brain and of the nervous system, Vitamin B is recognized as necessary. Probably Vitamin E is no less important. A matter for pediatricians to consider and to determine is whether the fortification of milk with Vitamins B and E would be advantageous. It seems clear that undoubtedly the obstetricians *by supplying liberally Vitamin E to expectant mothers* have a fertile prenatal opportunity to enhance profoundly the anticipated child's susceptibility to “learning,” or in other words, to assist in laying the foundation of *“mens sano in corpore sano.”*

Surely it is as important that a child shall be born with an endowment that will provide for a vigorous mentality as that he shall possess assurance of a sound skeletal development, such as can be furnished by Vitamin D!



From the first, Vitamin E has provoked some question as to the probability of the dual nature of this vitamin, with one factor having anti-sterility potencies, and the other serving as a galactagogue. The first to point out that a failure of lactation attended Vitamin E deprivation in rats were—coincident and separately—Sure and Tso. Very recently a galactagogue action in the human is credited clinically to wheat germ oil in which Vitamin B was entirely absent and Vitamin E abundantly present.

While Vitamin A seeks out particularly the visceral tissues in which to accumulate, it is the musculature and the fat that is sought selectively by Vitamin E. Some reports are appearing relative to the correction of a spastic and partial paralysis of the muscles of the lower limbs in consequence of Vitamin E therapy. This instance is an exact duplicate of the early phenomenon observed by Evans and Burr in the case of rats. These investigators found a very intimate correlation between muscle weakness and sterility, and the cure of both by administering wheat germ oil. Other dietetic deficiencies, such as lack of calcium, or of iodine, or too high protein, or want of Vitamins A, B, C or D, were ineffective both in preventing or in curing the paralysis.

Thus in the Vitamin E pre-deficiency syndrome, may appear a muscular paralysis for which the specific treatment necessitates the use of Vitamin E. Clinical prevalence of "E-Paralysis" is under extensive investigation. Mild forms of this affliction seems rather commonly prevalent.

In the ordinary metabolic as well as in the reproductive processes of the body, Vitamin E is valuable. Originally the studies having to do with the reproductive functions involved the use of rats. Females fed on a diet free from Vitamin E, but not allowed to reproduce, were just as infertile at the end of a certain period as were those rats which on the same rations had one or two successful gestations.

Before sterility due to lack of Vitamin E is established, then, there is a pre-deficiency period when certain symptoms may be manifested. These symptoms include impaired mentality, impaired metabolism, and weakened musculature, and are of types for which, most probably and apparently, only Vitamin E can be beneficial.

Long labor—tedious, patient, painstaking and

most impartial—is required and is tremendously much desired in the direction of identifying the pre-deficiency syndrome attending the lack of all the vitamins. As it is, discoveries of import have been made in regard to avitaminosis of each vitamin. In avitaminosis of Vitamin A, Mouriquant, Rollet and Croix have described a pre-deficiency state, discernible as an ulceration of the cornea, microscopically visible some twenty days before the onset of clinically recognizable symptoms of xerophthalmia. Avitaminosis of Vitamin B may be presaged by anorexia. Prognostic of avitaminosis of Vitamin G may be clouding of the cornea, or a beginning cataract. As to the pre-deficiency of avitaminosis of Vitamin E, there may appear the dulling mentality and muscular weakness portending the onset of sterility.

Vitamin therapy will become more generally useful, in fact will arrive at its rightful, registered position, with better clinical identification and recognition of pre-deficiency syndromes. This is a field as much for the general practitioner as for the specialist.

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## ALLERGIC DISEASES IN CHILDHOOD

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Allergy in man is a condition of specific hypersensitiveness. Allergic persons, therefore, may develop a response in certain organs to specific stimulation that is impossible in the non-allergic individual. Many tissues may be involved, the skin, conjunctiva, nasal mucosa, bronchi, gastro-intestinal mucosa, perhaps bladder and central nervous system including retina and meninges having been reported.

Allergic diseases cover five main forms according to Coca:<sup>1</sup>

1. *Atopic Illnesses* (human hypersensitiveness not occurring in lower animals and subject to heredity influences).

1. Asthma, and
2. Hay fever. To these may be added
3. Eczema
4. Urticaria
5. Angio-neurotic edema, and in some cases
6. Gastro-intestinal disturbances

<sup>1</sup>Read before Section on Medicine, at annual meeting of Illinois Medical Society, Springfield, May 15, 1934.

7. Migraine
8. Hematuria
9. Henoch's purpura, and certain
10. Types of mucous colitis.

The first three are of interest in pediatrics, and the fourth, fifth and sixth to a less extent.

II. Serum disease and drug hypersensitivity.

III. Hypersensitiveness of infection-tuberculin.

IV. Contact dermatitis including dermatitis venenata.

V. Anaphylaxis: this should be set apart, as it has never been demonstrated in the human.<sup>2</sup>

Matthew Walzer<sup>3</sup> discusses the manifestations of *atopy*, as without a pathognomic symptomatology. How then can we recognize atopy, or the allergic individual? This depends on the coincidence of some of these characteristics:

1. Manifestations in form of asthma, hay fever, etc.
2. Frequent occurrence of related conditions, eczema, urticaria, etc.
3. Hereditary character, including age of onset.
4. Tendency to develop hypersensitiveness.
5. Transient localized edema in most forms.
6. Eosinophilic tendency.
7. Choice of lining surfaces skin, mucosa, endothelium.
8. No pathognomonic tissue changes in pure atopic illnesses.
9. Tendency toward chronicity in most atopic illnesses.
10. Benign character as to mortality.

Then with this brief discussion of allergy and the atopic, or allergic, hypersensitive state, let us proceed to a limited discussion of

#### ASTHMA

*Historical:* Hippocrates used it as a word for dyspnea. Van Helmont three hundred years ago first wrote of its spasmodic character; Willis<sup>4</sup> emphasized its convulsive character. Meltzer<sup>5</sup> in 1910 described asthma as an anaphylactic hypersensitiveness in man. Coca and others have admitted its hypersensitive character but not as a form of anaphylaxis.

*Definition:* Asthma is that form of atopic illness which shows as recurrent attacks of paroxysmal dyspnea, especially in the expiratory phase.

*Prognosis:* Mortality figures have been given by Hoffman<sup>6</sup> at 21% in excess of expected insurance tables, but figures often are not reliable because many cardiac and other cases may be included as true asthmas, which they are not.

"Once asthmatic, always potential asthmatic rest of life"; however, in children, asthma, especially that caused by foods, may recover spontaneously.

*Prospects for health:* 50 to 75% excellent; 12 to 20% cannot be helped. This is probably a fair average of statistics, remembering that many asthmatics are seen after such complications as emphysema, chronic bronchitis or bronchiectasis have appeared.

*Treatment of asthma: During the attack:* Rest in bed, catharsis, reduce diet, hygienic care. Medicinal: Epinephrin, hypodermically, in three to eight minim doses, given *early* and repeated as needed is probably most reliable. Ephedrine, orally or by hypodermic administration, will carry some cases along. Atropine, aspirin and pituitrin, iodides, calcium, etc., have their advocates. Morphine is mentioned merely to be condemned, in treating children.

*During the interval* between attacks the most important therapy is: *Specific:*

1. Avoid contact with the offending excitant, or
2. Attempt desensitization.

It is unnecessary to comment upon the advisability of a thorough physical examination, and the elimination of any foci of infection.

Pollen filters may benefit some patients.

Two cases illustrate apparent recovery from asthma, one by elimination of the specific excitant, and the other by "outgrowing" the condition (desensitized by nature).

Case 1. C. J. H., aged 9 years. Had had asthma since six months of age. He suffered during the entire year, was taken to distant points in an attempt to evade the excitant. Skin tests were unavailing until cinnamon elicited a marked reaction. This was in 1924, and he has been free the past ten years.

Case 2. S. S., aged 5 years, from a markedly allergic family, would collapse from picking up a cat, and wheeze for a long time. Her skin failed to react to cat hair or dander, repeatedly. By avoiding contact over the years, she has apparently developed an immunity so that she has had no asthma for over six years, and can be in moderate contact with cats; that is, in the same room for a short period, although she will not handle them.



## HAY FEVER

*Historical:* Leonard Botallus<sup>7</sup> in 1565 described rose fever.

John Bostock<sup>8</sup> in 1819 accurately described the condition, as to symptoms, so that little has been added since.

Charles Blackley<sup>9</sup> described skin testing on himself in 1865, and published monumental researches.

Dunbar in 1903 developed pollantin, a serum, made by injecting horses with increasing doses of pollen.

W. Weichardt<sup>10</sup> developed graminol from herbivorous animals who were supposed to develop their own antitoxin as a result of eating blooming grasses. Either pollantin or graminol were the preferred treatment for over ten years.

Noon<sup>11</sup> in 1911 reported results from active immunization with subcutaneous injections of pollen extracts, and first put hay fever therapy on a sound scientific foundation.

In passing, it is interesting to quote Dr. Oliver Wendell Holmes' reply to Henry Ward Beecher's request, in 1868, for a hay fever remedy: "Gravel is an effectual remedy. It should be taken about eight feet deep."

*Treatment of hay fever.* General measures as with asthma.

*Palliative:* Ephedrine. Two or three grains to the ounce of water for the eyes; or a one to three per cent. solution as a nasal spray is probably as satisfactory as any. The large number of therapeutic agents available bear mute testimony to the failure of all to give more than temporary relief.

*Specific:*

1. Avoid excitant.

2. Desensitize in the manner best suited to your patient and yourself, whether it be perennial treatment (year-round), pre-seasonal, or co-seasonal.

An illustration of typical response to hay fever tests is afforded by

Case 3. C. B. had had severe hay fever for eight years. He tested four plus to giant and common ragweed, and two plus to goldenrod. (Goldenrod pollen is heavy, sticky, small in amount, and insect-distributed; not wind-pollinated: so it is not so important.) Pre-seasonal injections of pollen have kept him comfortable for five years.

## SKIN TESTING

*Historical:* Kirkman is given credit for making the first test for hypersensitiveness in 1835

by inducing hay fever by sniffing pollen from his hand. However, Blackley in the article previously referred to, probably made the first scientific *skin tests* in 1865.

In 1909 Smith<sup>12</sup> reported some interesting dermal scratch tests. A pediatrician, Schloss<sup>13</sup> is generally given credit for the establishment of skin testing as a scientific diagnostic aid. He used the methods introduced by Von Pirquet in 1907 for tuberculin testing.

*Skin testing is the most valuable diagnostic procedure in hay fever and asthma.* Properly done, with potent antigens, properly selected, strong enough, in a skin which is capable of responding satisfactorily, positive results do not always mean that our trouble is solved, but they are to be interpreted clinically, and if the clinical picture fits, these tests will direct our efforts to success in many cases.

*Excitants or Atopens:* The classification used is not important. The one used here has been called the five "ants." It is from Bowman and Walzer.

*Ingestants:*

- A. Cereals  
Wheat—Rice—Oats—Buckwheat  
Corn—Rye—Barley
- B. Egg
- C. Cows Milk
- D. Fish and shell food
- E. Meats
- F. Nuts
- G. Vegetables
- H. Fruits
- I. Spices
- J. Chocolate-Cocoa
- K. Honey
- L. Beverages
- M. Medicinal and Chemical agents.

*In'halants:*

- A. Pollens
- B. Animal Danders
 

Horse	Rabbit	Hog	Chamois
Cat	Wool	Camel	Monkey
Dog	Feathers	Mouse	Sundry
Goat	Cow	Guinea Pig	
- C. House dust
- D. Seeds—Cottonseed—Flaxseed—Kapok seed
- E. Miscellaneous
 

Orris root	Castor Bean
Glue	Coffee Bean
Tobacco	Insect Atopens and Excitants
Pyrethrum	Mites, Fungi, Molds
	Various Botanical Excitants

*Contactants:*

- A. Silk Worm
- B. Cosmetics and Perfumes

C. Poison Ivy and Primula

D. Miscellaneous

*Injectants:*

A. Animal Sera

B. Drugs and Medicinal Agents

C. Insect bites

D. Miscellaneous

*Miscellaneous Excitants:*

A. Parasites

B. Physical agents

C. Bacteria and their products

It must be remembered that skin tests alone are often unsatisfactory in giving false negative tests. One need only to read Rowe's<sup>14</sup> splendid treatise "Food Allergy" to see results that can be accomplished by his "Elimination Diets" in the presence of negative tests or without skin testing. Rowe emphasizes the tendency for a *food allergy* to change from one manifestation into another; as a patient with infantile eczema clearing spontaneously; becoming asthmatic at two or three years of age, after the eczema disappears; the asthma being outgrown at eight or ten years, but a gastro-intestinal allergy appearing in the teens; or possibly a migraine.

The *cyclic* nature of food allergy, with its *recurrent* attacks of vomiting, acidosis, etc., have been frequently emphasized.

*Eczema:* Should infantile eczema be approached from the allergic point of view? Most eczemas will disappear without specific or allergic investigation, if given a little time, plus your favorite method of treatment, be it mechanical restraint, ointments, internal medication, or what not. A *small percentage* persist and these should certainly be investigated, although many will be cleared up before the allergic tests have proved their etiology, clinically.

Two interesting eczemas illustrating marked specificity follow:

Case 4. J. T. developed eczema after eighteen months. Ordinary therapy not being satisfactory she was tested and found four plus to almonds. Nuts are notorious for giving misleading reactions, but in this case removal of all possible contact cleared the eczema without other treatment. A year later a terrific reaction followed the use of a cold cream made up with some almond oil in it. During the past three years she has been O. K.

Case 5. S. B. aged 3 years, had had eczema for the past two years. A marked reaction to Le Page's glue revealed that the child had a favorite pastime of chewing the bindings from magazines, etc. He has been free from eczema in the four years since this was stopped.

*Urticaria:* This condition is undoubtedly aller-

gic in many cases but is often hard to hook-up to specific atopens.

Case 6. R. M. aged 12 years, had had urticaria for three years. Although it was intermittent, she was never without it over a day or two. Fifteen or twenty skin tests had been done but she had not been tested thoroughly. The urticaria disappeared following a severe case of measles with hyperpyrexia.

*Angio-neurotic edema* is usually more of a clinical curiosity but occasionally is an alarming condition as in the following illustration:

Case 7. F. W. L., aged eight months, had had a mild eczema for six or seven months. He suddenly developed a swelling of one ear and adjacent tissue. By the time he could be brought to the office, a distance of about thirty miles, the face was normal. As he left the office the face started to swell and a close inspection of the lower lip in the two illustrations, taken about



Fig. 1. Case 7: Angioneurotic edema. Note swelling of face, especially lower lip to compare with Fig. 2.

thirty seconds apart, showed the speed with which the edema developed. He was sent to the hospital for observation. A few days later his temperature at six P. M. was normal. His mother left the hospital for home a few minutes later; at six forty five P. M. the temperature was 108 degrees F. and the baby appeared unconscious and moribund. Adrenalin and atropine in addition to antipyretics and hydrotherapy brought the temperature down to 101 degrees in an hour, and it



remained under 100 degrees after another hour. A day or two later an enormous distention of the upper abdomen, with the siphoning off of a quart or more of fluid giving a positive chemical test for blood, and showing a few blood cells under the microscope, gave evidence of an angio-neurotic edema of the upper bowel. Since then the eczema has been the only allergy, and now after two more years he is quite clear. Looking back,



Fig. 2. Case 7: Angio-neurotic edema. Photograph taken 30 seconds after Fig. 1. Note rapidity of Edema across Lower lip.

done, because new tests showed many positives, and so marked that they were checked with conjunctival tests. Incidentally this patient showed a marked response to *physical stimuli*, to which Duke has called our attention, going into a typical attack of asthma when rubbed with ice. The lesson from this should teach us to be as thorough as possible in allergic work and not to condemn it as worthless because of some failures, whether they are real, or only apparent failures as in the above case, at first.

Some allergists are too enthusiastic. They can cure anything. Many of us are too skeptical—believing allergy has little of value. Feinberg<sup>15</sup> has nicely shown that the proper approach is midway between these extremes, and I commend you to a patient, receptive attitude in your allergic studies, on that basis.

321 West State Street.

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#### DISCUSSION

Dr. Leon Unger (Chicago): I was very much interested in Dr. Crawford's paper and I think he has covered the subject of allergy very well for the brief time he had.

There were some points in his paper that might be stressed a little. The point he made about the prognosis of asthma being 21 per cent greater than the average person for the same age is perhaps a little doubtful. The insurance statistics from which this prognosis was evidently taken came out from the Metropolitan Life Insurance Co. just recently, and in that paper the diagnosis was asthma, and it did not give any statistics as to just how they arrived at the diagnosis or whether those patients really had an allergic workup with a sound allergic treatment.

I do not believe the mortality of asthmatics is 21 per cent greater than the average mortality, provided the patient is well taken care of. I think you get the

his improvement has been due largely to avoidance of *orange*, to which he was *not* skin sensitive and *peas*, to which he was three plus. Egg, which was three plus, and wheat, which was doubtful, were mildly involved. Ragweed, three plus, and horse dander, four plus, have as yet not been active offenders in his allergic life.

So much misinformation and skepticism is in the minds of many doctors and lay people that the following report carries a lesson for us.

Case 8. J. L. aged 7 years, had had asthma of a severe type since infancy. His attacks were so severe, and so frequent throughout the year that his development was markedly retarded. A physician had told the family that skin tests "were all negative." If this report had been accepted as final the child might still be in the same shape. However, the original tests must have been improperly done, or deteriorated antigens used, or the skin was not sensitive when the test was

best results in the department of pediatrics where you can begin to work on your patients while young. In such group the mortality should be no greater than in an average person.

There are two main complications of bronchial asthma, emphysema and chronic bronchitis. Those two come on rather early in life if the child is allowed to have attacks of asthma. The lung balloons out, the child becomes emphysematous, the chest deformed and we cannot clear up the emphysema.

There is one point he has not stressed, that is the preventive treatment, especially of bronchial asthma which happens to be the most important of all the allergic conditions.

I think if we consider that the children of allergic individuals are potential allergics and will take care of them from that point of view, we will arrive at very good results in that group of cases.

Every child that has a parent or parents who are themselves allergic, should be considered as very liable to develop asthma and hay fever. And in such children it is a wise precaution to treat them or handle them on such a proposition as this: if you consider that eggs, wheat and milk and other foods are the main causes of their eczema, then watch the diets of these children from the day they are born. After they are through with a period of breast feeding put them on cow's milk. See how they get along on that. Then when you start adding foods later on, add one food at a time—add orange juice, then egg, etc. Add each new food at two weeks' intervals. If eczema, or hives or asthma develop, you will be able to check your cases very well.

These children should be shielded from the more common causes of bronchial asthma such as feathers and animals. Children of allergic parents should not be allowed to sleep on feather pillows, to have dogs or cats or go horseback riding, unless you are sure that those things do not cause any trouble.

Furthermore, they should not be overexposed at one time to pollen. They should not—for instance, city children—be sent to camps during the hay fever season unless skin tests to pollens are done and are found negative. Children in Chicago are very often sent out to a camp during the pollinating season, and the susceptible ones develop hay fever, just as soon as they get to camp.

Dr. I. Harrison Tumpeer (Chicago): Time will not allow the discussion on Dr. Crawford's excellent paper which I had prepared. However, I am awfully glad for the opportunity to follow an internist and comment on his discussion from the pediatrician's viewpoint.

Allergists are mostly migrated internists, but allergy is fundamentally pediatric. In the first place, the history of allergy begins in pediatrics. The older pediatricians described a group of disorders under the name of diatheses. It does not take much study to discover that the diatheses of the older pediatricians is the allergy of today. I have brought this out in a rather detailed study recently. Furthermore, Von Pirquet, gave the name to allergy. The same Von Pirquet gave the

scratch test, and Schick brought popularity to the interdermal test. Furthermore, the unfolding of the various signs and symptoms of allergy is most clearly seen through childhood and puberty. Only the pediatrician has access to this group. The internist-allergist sees the child only for a fully developed allergic condition like hay fever or asthma.

The internist-allergist bravely discusses children's allergy. He sees it only with the internist's eyes. He speaks of testing and indicting all of the children in allergic families. He advises starting egg yolk first and orange juice next. He never worries about illness in allergic children. He has not heard of the eczema deaths which the old pediatricians described. I would like to warn him to look out for the children with allergy because they are apt to react outrageously to disease and because they may do what Dr. Crawford's patient did—namely, develop a severe eruption and run a temperature of 108 degrees.

The internist-allergist's viewpoints concerning pediatric aspects that we have heard are distorted. For instance, he speaks gravely about the low mortality rate in children with asthma. No internist knows that because he has not the running contact with a large group of children along the years. The idea of the low morbidity rate among allergic children has been handed down from a paper written by an allergist who is not a pediatrician. In a preliminary survey of a group of thirty-eight babies with allergic symptoms, I found eight deaths among these children and their brothers and sisters. It is a characteristic manifestation of this group that when they do have illness, they react outrageously to infection. As far as the dietary advice that we have been offered, manipulations of the diet are fundamental and elementary to every pediatrician. We do not give eggs before orange juice and it is not practicable to add one food at a time, as Dr. Unger suggested, even in a known allergic family. Furthermore the suggested two-week period of food trial is not the answer. In certain people a food taken daily may produce its effects only once a month.

We must be practical. We start with cow's milk, and add other foods as necessary. It seems far-fetched to test every child in an allergic family on the possibility that the child might be allergic. After all, not every child of allergic parents will develop allergy. The idea of the family survey is rather amusing. Apparently, Dr. Unger is not satisfied with the variety of clinical pictures which allergy has already claimed as its own. Now he wants to get all the children coming to his office. The pediatrician knows this field. The internist betrays his inexperience.

The internists are doing the best they can with allergy, but they must not forget that their understanding of allergic diseases is based on their experience with clinical medicine. Let them hesitate, lest they involve themselves in clinical pediatrics when they discuss children's allergy.

Allergy arises from pediatrics. Allergy will learn from pediatrics.



## DARKFIELD DIAGNOSIS OF INFECTIOUS SYPHILIS

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It is very generally agreed that syphilis is more amenable to treatment if the treatment is begun early in the disease. Quantitative estimation of the superior results of early treatment appears in the studies of Moore and Kemp.<sup>1</sup> They say "Grouping together cooperative and uncooperative patients, without regard to the character or duration of treatment, it is shown that if treatment can be begun within the first two weeks of the infection (sero-negative primary syphilis), the chance of ultimate cure is almost twice as great as when it is delayed until the appearance of secondary manifestations. In particular, the incidence of reinfection in the groups of sero-negative and sero-positive primary and early secondary syphilis is 11.9, 8.1, and 3.0 per cent respectively. The extreme importance of early and accurate diagnosis is thus emphasized."

### EARLY SYPHILIS

Stage	Number of Patients	Rein- fections	Average Duration of Chancre
Sero-negative primary.....	42	11.9%	14 days
Sero-positive primary.....	61	8.1%	10-50 days
Early secondary.....	299	3.0%	96 days

Table 1

(From Moore & Kemp, Johns Hopkins Hospital, 1926)

The reinfection rate is taken as the best index of complete cures in the particular groups. The foregoing opinions were based on a total of 402 patients selected from a much larger group—the only basis for selecting these cases was the fact that records and follow-ups were complete in these cases. To summarize in another way, the same authors say, "With the utmost cooperation on the part of the patient, and painstaking treatment and follow-ups on the part of the physician, it appears possible to cure 100% of patients with sero-negative primary syphilis, but only 80 to 95% of those with sero-positive primary or early secondary syphilis. The refractory 5 to 20% seem likely, in spite of the utmost efforts of therapy, to develop late syphilis, especially neurosyphilis."

From the above study, and from numerous others, the extreme importance of early accurate diagnosis is apparent. To accomplish the differential diagnosis of the primary lesion of syphilis, one has a choice of two different methods—namely, the demonstration of *Treponema pallida* itself in the lesion, or the demonstration of complement-fixing antibodies in fluid taken from the lesion. The latter test, with serum from the chancre, is positive sooner than the blood but this test is not very practicable. It is necessary to collect a measurable amount of clear serum from the lesion and to protect this small quantity of fluid from drying until the test can be performed. The alternative method, that of demonstrating the causative organisms in material from the lesion, may be approached from several angles. These tests require less fluid and are more readily accomplished. The well-known India ink procedure, in which the serum from the suspected chancre is mixed with a small amount of ink on a glass slide and then spread in a thin film, is simple enough but requires a considerable amount of skill and experience. Ordinary smears may also be made and dried in the air; these can then be stained with any of the special stains recommended for *Treponema pallida*. There have been approximately 200 different stains proposed for this organism.

The most efficient method of examining chancre fluid is by the darkfield test—this has been the experience of almost everybody who has studied the question. McNabb, Matthews, and McClure<sup>2</sup> have reported a small series of comparative tests which shows the superiority of the darkfield test over other methods of diagnosis in early syphilis.

	No. Examined	Positive		Negative	
		No.	Per Cent.	No.	Per Cent.
Darkfield .....	77	56	72.7	21	27.3
Smears .....	49	29	59.2	20	40.8
Presumptive Kahn....	73	47	64.4	26	35.6
Hinton .....	62	40	64.5	22	35.5
Sensitive Kahn.....	71	41	57.7	30	42.3
Wassermann .....	43	21	48.8	22	51.2
Diagnostic Kline.....	29	18	62.1	11	37.9

Table 2

(From McNabb, Matthews, and McClure, *Canad. P. H. Jour.*, 1933, 24, 405.)

It is seen in their table that the darkfield test gave the highest percentage of positive results. The Hinton and presumptive Kahn tests ranked next in revealing cases of early syphilis. Also in this connection, an interesting study by Owen and Cope<sup>3</sup> may be cited in which they showed

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the comparative efficiency of serological and darkfield tests in primary syphilis. These investigators studied 1061 proved cases of primary syphilis by darkfield, Kahn, and Kolmer Wassermann tests. Their results appeared in the form of a tabulation; I have represented them graphically in Figure 1. It is immediately apparent from inspection of this graph that serological tests do not equal the darkfield test in efficiency until the third week of the disease.

PERCENT. POSITIVE TESTS BY WEEKS IN 1061 CASES PROVED PRIMARY SYPHILIS

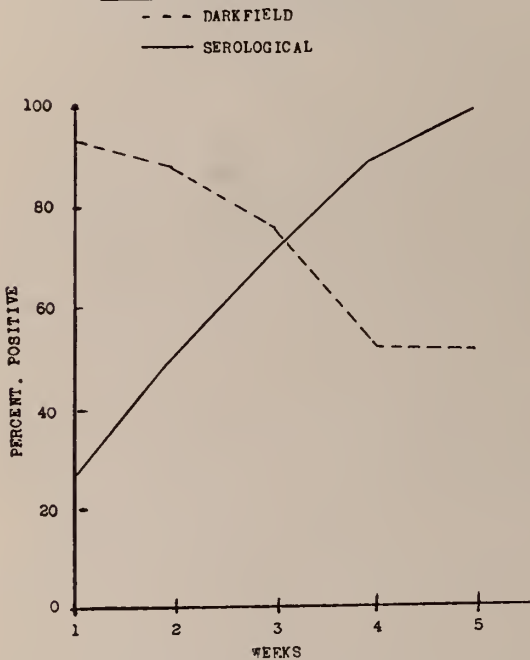


Fig. 1. (Taken from Owen and Cope, J. Lab. & Clin. Med., 15: 579-583, 1929.)

From the findings of Moore and Kemp,<sup>1</sup> previously cited, the chance of curing the average run of patients is almost twice as great when treatment is begun in the first two weeks of infection, as compared with treatment delayed until serological tests become positive or secondary manifestations appear.

The darkfield test, besides being very useful in the sero-negative stage of syphilis, still gives indisputable diagnostic evidence in a large percentage of cases after late secondary signs have appeared in the patient. This has been demonstrated in a cooperative study<sup>4</sup> by the Mayo Clinic, Johns Hopkins, Pennsylvania, Michigan, and Western Reserve Universities, and the Venereal Disease Division of the United States Public Health Service. The percentage of positive

darkfield tests, shown in Table 3, was highest in the sero-negative primary stage (94.4%), and fell to an average of about 75% in the sero-positive primary and secondary stages.

RESULTS OF DARKFIELD EXAMINATIONS FOR PATIENTS ADMITTED WITH EACH STAGE OF EARLY SYPHILIS

Stage	Total	Darkfield Examinations—			
		Positive		Negative	
		No.	Per Cent.	No.	Per Cent.
Sero-negative primary	162	153	94.4	9	5.6
Sero-positive primary	179	130	72.6	49	27.4
Early secondary.....	226	179	79.2	47	20.2
Late secondary.....	11	8	72.7	3	27.3
Total .....	578	470	81.3	108	18.7

TABLE 3

(Cooperative study—Reported in Ven. Dis. Inform., 1932, 13, 175.)

Undoubtedly the best conditions for the darkfield examination of lesions suspected of being syphilitic are those in which the patient goes to a laboratory or special venereal clinic and remains until satisfactory test material has been examined. The material is freshly collected by an experienced worker and the patient is available if retests on more of the secretions are desired. There is, however, a large field for a test which would be available to physicians practicing in rural communities and in small towns where there are no laboratory facilities. Also patients unable to pay for the services of a venereal specialist and unwilling to go to free clinics and dispensaries would benefit by a test which could be collected in the doctor's office and mailed to a state or municipal laboratory. Such a service should be offered by public health organizations because the early diagnosis of syphilis is distinctly in the field of preventive medicine.

Mahoney and Bryant,<sup>5</sup> experimenting with material from rabbits and also from human lesions, found that recognizable treponema persisted in collected specimens for 4 to 5 days in most cases. They used straight capillary tubes, filling them by capillarity and sealing with a paraffin-vaseline mixture. A progressive decline in motility of the organisms was the usual finding in the collected material. Temperature of storage was an important factor, they found: tubes kept at higher temperatures became unsuitable or negative in darkfield tests sooner than those kept at lower temperatures. This was interpreted as being due to the effect of the bacterial over-growth which was more pronounced at the higher temperatures.

Our efforts have been directed towards the



development of a method which will permit of the collection of serum from chancres in such a manner as to afford optimum conditions for the survival of recognizable treponema. The method must be simple enough to be readily understood and the completed package must be such as to withstand rough handling in the mail. Postal laws and regulations also had to be taken into consideration.

An outfit which has been satisfactory in our hands, and which has been approved by the district supervisor of parcel post, consists of a one-piece stamped iron box, 6.5 x 2.5 x 1 cm. with a slip-cover to fit; paraffin-vaseline mixture, capillary tubes, identification card, and the usual screw top mailing tube. The capillary tubes are 5 cm. long and of about the same thickness and bore as the tubes in which smallpox lymph is ordinarily dispensed. Three of these capillaries are sent out in each outfit and they are placed in a small glass test tube with cork stopper for protection against breakage. The small iron boxes are half filled with the paraffin-vaseline mixture which is then allowed to harden. The percentage of paraffin is varied to suit the seasonal variation in temperature—approximately 10% paraffin is suitable for all but the hottest weather.

To fill the capillary tubes, the doctor secures an exudation of clear serum on the lesion and applies one end of the fine tube to the fluid. It is recommended that the tube be held in a horizontal position to assist the capillary flow, and it is also requested that more than one tube be filled as a safeguard against drying which happens occasionally. When the specimens have been taken into the tubes, the latter are placed on the surface of the grease in the box and gently pressed beneath the surface. This seals both ends of the capillaries and at the same time provides support and protection for them in transit.

To examine the specimens at the laboratory, the tubes are removed from the grease with forceps and the contents expelled by repeatedly pressing one end of the tube into a stiffer paraffin-vaseline mixture until the fluid is driven out of the other end of the capillary onto the darkfield slide. A point of practical value, in the laboratory at the time of preparing the slides, is to allow a small amount of the grease which adheres to the capillary to drop on the slide. This serves to anchor the cover-slip at the cen-

ter and to prevent sudden currents in the preparation under the microscope.

Through the cooperation of two venereal clinics in Chicago, we have received known positive material from cases of primary syphilis. These specimens were sent by mail so that the effect of such handling would also enter into the trial of the method. Additional advantages in this arrangement were that the time of placing the specimens in the capillary tubes was known and also the approximate abundance or scarcity of treponema was in most cases indicated on the information card.

The results of these preliminary tests may be summarized briefly by tabulation Table 4.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH			
Results of Delayed Darkfield Tests			
Days*	No.	Pos.	Per Cent.
1 .....	57	56	98.2
2 .....	42	35	83.3
3 .....	14	12	85.7
5 .....	1	1	
6 .....	1	0	
	115	104	

(\*Between mailing and receipt.)

Of the total of 115 examinations, 104 or 90% were found to be positive after 1 to 3 days from the time of collection. Two specimens were delayed in transit and were received 5 and 6 days after the material was collected. The first of these was still positive, but the 6 day old sample was negative. The specimens which dried out in transit did so because the capillary tubes were not forced below the surface of the paraffin-vaseline mixture.

A positive diagnosis in this series of tests was based on the presence of treponema of characteristic form. As reported by Mahoney and Bryant, it was noted in general that a progressive decline in motility took place. Motility was not, however, strictly correlated with the age of the specimens. Many of the one day old tubes contained organisms which were non-motile and occasionally actively motile forms were found in 2 and 3 day old specimens.

The presence of other spiral organisms was noted in many of these specimens, but they did not interfere with the survival of *Treponema pallida* in a recognizable form. Too many red blood cells in a dark field preparation render the examination difficult, but it is our impression that there was better preservation of motility and form in specimens which contained a few to a moderate number of red cells. Whether this

was accomplished through the production of a more favorable oxygen tension, or whether it was due to other causes is not known. In the routine use of this delayed dark field test, it should be especially emphasized that a negative result does not exclude syphilis in the patient. Retests are indicated on all negative results.

#### SUMMARY

1. An outfit is described which enables the doctor to collect and mail chancre fluid for dark field tests. This outfit is made available without cost to physicians of Illinois by the State Department of Public Health.

2. Controlled tests with known positive chancre fluid have yielded 90% positive results after an elapsed time of 1 to 3 days in the mail.

*Acknowledgments.* The writer wishes to acknowledge especially the cooperation of the Chicago Municipal Social Hygiene Division and the University of Chicago Skin Clinics. Credit is also due Mr. Heward Elmer, previously associated with this laboratory, for preliminary experiments.

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#### DISCUSSION

Dr. Andy Hall, Mt. Vernon, Illinois: I don't think that there is any subject that could be discussed before this State Medical Society that is of more importance to the physicians and to the public, from a public health and a public welfare standpoint, than the subject under discussion here this afternoon, the "Early Diagnosis of Syphilis."

Some two or three years ago, realizing the importance of the early diagnosis in syphilis, the personnel in the Public Health laboratory in Chicago was encouraged to undertake this study so that the diagnosis could be made by a dark field examination after the specimen was collected. I am pleased to know that this experiment has proven successful and that a way has been found whereby the man practicing in the rural communities, who isn't equipped with a laboratory and a technician to make these examinations, can collect specimens and send them to one of the State laboratories and get an early diagnosis.

Mr. McDaniels has just told us that with specimens collected and received twenty-four hours after mailing they are able to get positives in about 98 per cent; when collected, mailed and received three days after mailing, positives by the dark field method were found in something like 85 per cent of the specimens. There is not a physician living in any part of the State of Illinois but could, by using this method, collect his specimens and have them reach the laboratory within 36 hours after mailing.

It is a well known fact that the early treatment of syphilis secures the best results. You should read the recent article in the *American Medical Journal* of April 21 by Stokes, Cole, Moore, O'Leary and others. They reported 75,000 cases of syphilis. Three thousand two hundred and forty-four of these cases were followed for six months or more; 385 cases were followed for five years. And the best results, under the most intensive treatment that they were able to give, even where the dark field diagnosis was made and treatment was begun early, they only secured an average of about 71.4 per cent of cures. The best percentage of cures was 83 to 86 per cent. In those cases where the treatment was not commenced until they had a sero-positive primary, the average cures was only 53.3 per cent. The best treatment they obtained was 64 to 70 per cent. This means a loss of at least 18 per cent of cures if you wait until you get a sero-positive before commencing the treatment. On the secondaries, with blood positives, the average number of cures was 50 per cent. The best cures was 61 to 82.

Chargin and Stone reported a study of 444 cases of syphilis. Thirty-six were treated from the primary stage and they reported a cure of 90 per cent, while the cures in early secondaries was only 61 per cent and the late secondaries only 45 per cent of cures. Hence the great importance of early diagnosis and intensive treatment, if we are to prevent the ravages of syphilis.

Syphilis accounts for about 15 per cent of all the blindness in the country. We know that one out of every seven men and one out of every seventeen women sent to the hospitals for the insane are sent there because of paresis as the result of syphilis. We also know that a large percentage of the premature births and still-births are the result of syphilis. And the statement has been made, and it is perhaps correct, that from one-sixth to one-fourth of all the deaths from heart disease occurring in adults is due to syphilis. In other words, from seventeen to twenty-five per cent of all individuals who die from cardiovascular disease after they reach manhood and womanhood are due to syphilis.

Of the three great causes of heart disease, syphilis is the only one we absolutely can prevent if an early diagnosis is made and intensive treatment started at once. Syphilis ranks with cancer, pneumonia and tuberculosis; but, unlike these other diseases, our means of diagnosis, of prevention, and of cure, if universally applied, could absolutely prevent syphilis and the disastrous results that follow. It is sometimes astonishing why that hasn't been done, when the means of diagnosis, the means of prevention and the means of



cure are so simple, as compared with many other great health problems in which great progress has been made.

Now, one reason why we have the disastrous results that follow syphilis is because we haven't made our diagnosis early and because we have not followed it up with intensive treatment. We will not make our diagnosis early until we begin a syphilitic propaganda among the public, just as we have done concerning the prevention of typhoid fever, diphtheria, smallpox, scarlet fever, and some other diseases. I wonder how many individuals are in the habit of making public addresses before lay audiences in which they talked about the venereal diseases, their causes, the ways in which they are transmitted, the ways of prevention and the means of cure. Very few, comparatively speaking. I think every group of high school boys and every group of high school girls should have three or four lectures on venereal diseases before they leave high school. The time when they become infected is usually from the high school age up to twenty-five. Many of them leave the high schools with practically no knowledge concerning one of the diseases that is most disastrous to health and to life itself. Until we have done this and put on a thorough campaign among that class of students, we will have our blind, our insane, our crippled hearts and other sequela as a result of this disease—syphilis.

I want to thank Mr. McDaniels for carrying out these experiments and for outlining a way whereby the country physician, the man who is distantly removed from laboratories, can collect these specimens and send them in and get an early diagnosis. The field men in the Department of Public Health that visit the physicians in their territories should carry these little receptacles and explain to the physicians how specimens can be collected and impress upon them the necessity of making an early diagnosis and carrying on an intensive treatment.

Dr. H. J. Shaughnessy, Springfield, Ill.: When Mr. McDaniels presented some of this material in preliminary form in Indianapolis, one of the discussants made the point that several similar outfits had been described by various workers. None, we believe, is as good as the one which has been described this afternoon. But several have been described. And yet he wondered how much good they would be when they actually got out into practice. He said it was all very well to discuss them but he wondered what would happen when the practicing physician began to use them. Well, I have several figures that will illustrate, I think, two phases of this. The first is that, although this method has been in use for more than a year, the method has not been widely accepted by the practicing physician. It has been described before a good many county medical societies. That is the first problem we have to contend with. The second is that we have some knowledge now of what per cent will remain positive when the average practitioner takes the specimen. From January 1, 1933, to date in the main laboratory here in Springfield, we have received 29 of these outfits; only 29 to date, in spite of the fact that we have sent out several hundred in response to requests from physicians who were interested in seeing the outfit. Of these,

ten were positive, eighteen were negative and one was unsatisfactory. In other words, about 35 per cent of those actually received were positive. We don't know yet, although we are getting such information, what per cent of these negatives were later proved to be syphilis by serological tests. But I think that, if we have a method by which even 35 per cent of suspected primary chancres can be diagnosed in the laboratory, that is a distinct advance. I believe, if we were to weed out the negatives which were definitely negative, that the percentage would be a great deal higher than that.

## IMPROPERLY DIRECTED BIRTH CONTROL PROPAGANDA

EFFIE L. LOBDELL, M. D.

CHICAGO

Just as it is a published fact that there are more homes for babies than there are suitable babies for homes, so it is a fact that there are more demands for treatment for overcoming sterility than otherwise.

While there is an abundance of medical literature on sterility, we are today indebted to Dr. Leo Latz for bringing the subject up to date by combining the translation of Knaus and Ogina with interpretation of their research work available for our use.

For every truism, its opposite must also be true. Therefore in studying sterility, the rule for human fertility is discovered—and in place of a child being born, a new racket is born—which threatens to overshadow the original design.

Physicians devoting themselves unselfishly to the great problems of life and health, are apt to find themselves suddenly confronting a tragedy.

Estimated by a businessman, we are always "cutting our own throats" by solving these problems for an ungrateful public.

Unfortunately this leads many physicians to become careless of duties they should be informed of, or of giving information to their patients individually what they have a right to expect.

This leads to a class of exploiters who seem to lie awake nights to grab some important point on which to develop a lucrative business, taking the large group of uninformed and gullible public away from its natural resource—the doctor—into a most dangerous group, the exploiter.

Unfortunately, due to the want of organized activity on the part of the medical profession,

local and general, and the fact that newspapers, magazines and other sources of activity are so easily used to furnish worldwide publicity, propaganda by non-professional agents becomes all powerful in short order, not only using the subject to get themselves a salary, sell a device or a drug—but even to make personal calls on an inquirer.

A reading of their literature finds not only the main object, but perverse suggestions, which alone would bar them from the mail.

Here begins the tragedy of the conscientious doctor who, in attempting to add to the scientific and ethical information for the benefit of his fellow physicians, all of whom are not able to spend the time, money or travel necessary to gather the points being worked out for us by worldwide laboratory research.

This is where the younger men and women in the medical profession have the advantage of those of us bound down by our work more than ever before because of the unusual conditions we find ourselves in today.

This article is inspired by the day's publication, the *Chicago Sunday Tribune*, in its out of town edition, with a full page article titled "Science in Birth Control Quest Favors Natural Law" which will not be seen by the Chicago physicians or readers.

But why is it not in the Chicago edition? What is the policy behind this?

It presents the subject ethically; is well written and shows the highest type of authority is the basis for what promises to be a far reaching movement in correcting human behavior on a vital point.

How shall it be presented to the people at large? That is the question to be immediately determined. Shall it be *sold* as a commodity or shall it be *one thing* that can be handled by properly educated, licensed men and women.

We have all seen our attempts to train people to assist themselves in disease such as diabetes, tuberculosis, neurasthenia, cancer and other widely prevalent, exploited by an hotel chef, by a pseudo naturalist using turtle serum, by a pseudo psychologist and our cancer clinics run by women's clubs and other so-called research foundations *buying* the doctor and collecting all the endowments and income.

We have seen the local Birth Control League with its four branches, one of which sells out-

right contraceptives, the other three, after an examination costing \$3.00, sends their prescriptions for supplies to a neighboring drug store which later rebates to the League. The printed last report gives an income of about \$10,000 the year, about \$4,000 of which is paid two examining physicians. The average cost to each applicant is \$10.00 and there are a dozen or more of these clinics run by nurses and non-professional women trained to examine and advise.

On the Board of Directors are eminent names of doctors, clergy and citizens, whom I doubt know anything about its procedures.

Physicians in good standing endorse by letter many contrivances and methods peddled about by nurses and lay salesmen, before even patents are obtained.

Only yesterday I interviewed a representative of a so-called research laboratory which aims to cover every phase of human conduct in this movement, whose momentum is gaining such rapid headway because of the intensely human interest.

He was a layman without chemical, laboratory, or any special education which would fit him. He had acquired the professional vocabulary necessary to impress almost to that of an orator.

He was very frank in answering questions and taught me several things I did not know. The literature he left confirmed his statements.

Did you know that an injection of sterilized semen, subcutaneously or intramuscularly immunized the woman against pregnancy for one or even two years?

That a man subjecting himself to a very hot bath was sterile two weeks at a time?

Other equally startling facts are part of the distribution literature. The laboratory sends out instructed women to examine and advise women as to their particular needs and sells *anything* needed, the average expense about \$10.00 per person.

The territory covered is *national*. They procure the names to be solicited from the local birth registration. After a woman has time to convalesce but not forget her discomfort from childbirth, she is visited *socially*. This party I interviewed claims to have personally called on 5,000 women.

The booklet contains many paragraphs of sex



information greatly exaggerated and greatly tending toward perversions.

Whose fault is this state of affairs?

Has not the time passed when doctors shall turn aside from vital, normal information to a patient? Shall he not inform himself through the excellent authentic books of today which he can use as authority if he shirks personal responsibility?

The author of one book has already met with me and 64 other physicians and personally demonstrated his reports as did also Dr. A. J. Miller of Hobart, Indiana, who told us of 800 cases of record and corrected some of the theories we had been taught.

The nonprofessional does not understand our attitude and are disgusted with those of us who refuse to accept general guidance of family health matters as did the old family physician, and they are informing themselves individually and by books.

I think, as a class, we are inclined to be asocial with our clientele except through golf, cards, and games, and we keep our groups too small.

Too many medical society and hospital meetings about trivial things take too much of our time. We are not enough interested in the big arts, music, pictures, sciences, either for diversion, creation or preservation of national ideals or the upbuilding and defense of our most noble profession from the mites in our midst.

We are too apt to withhold praise when another physician's name is mentioned. How seldom we hear of one praising another. How often one hears the criticism of another.

Would our work not be less vulnerable if we had more of the guild spirit?

Coming back to the subject under discussion, what is the immediate cure?

A movement by the high authorities to standardize the present authentic information as given by Knaus-Ogina and presented by Dr. Leo Latz, Dr. A. J. Miller, and others, making it so simple that all physicians shall be able to teach individually the man or woman applicant; to *compel* contraceptives to be under Federal Control, after endorsement by competent authority, and that publicity about methods be freely distributed so that the sex problem shall go back into its place as a lesser problem, which like other senses and physical functions has its own personal hygiene.

## RADIATION THERAPY OF GAS BACILLUS INFECTION

J. J. FAUST, M. D.

DECATUR, ILL.

Gas bacillus infection in civil life is becoming more common but it is still infrequent enough that many doctors have never had a case in their practice. With the automobile and highly developed mechanical age in which we live more severe injuries result. In 1929 there were 31,500 automobile accidents. With these severe injuries the gas bacillus infection has been attended with a higher mortality in the past. The average mortality has been about fifty per cent.

*Etiology.* *Bacillus Welchii* or *Bacillus perfringens* may be the most important and most commonly found organism but *vibrio septique* and *B. hystolyticus* also are frequently found. Some of the bacteriology manuals list as many as thirty types of organisms which may produce gas in the tissue. Some of these are less virulent than others and some are considered even non-pathogenic. The diagnosis bacteriologically is made by culturing the discharge or smear in suitable media under anaerobic conditions in an incubator. Gas may be formed in 6-8 hours in some cultures. This organism may be found in the alimentary tract of men and animals and may be isolated from garden soil and polluted streams.

The important sign of gas bacillus infection is crepitation due to the presence of gas in the tissues. The area usually has localized inflammation and swelling in the beginning. Extension is by contiguity. With open wounds a foul "mousy" odor is generally observed and most generally distinct and never to be forgotten or confused with other odors. Profound toxemia, rapid pulse and rising temperature generally occur. History of injury must usually be considered.

The use of prophylactic antitoxin and serum has saved many lives but results with this and surgery alone have not produced the results to be desired so far.

Whether the type of therapy being proposed will supplant the now used methods or only be an important aid is still an unanswered question.

There are several possible theories of the action of the x-ray but no one can as yet say just how the action occurs. But since results are ob-

tained it is believed that the methods of therapy should be given publicity at this time for the good it may do.

One explanation of the action of the x-ray is that when x-rays are played upon nutrient fluids they are deadly to protozoa by producing small quantities of hydrogen peroxide. The presence of the hydrogen peroxide would be fatal to these anaerobic organisms. Due to the absorption of the hydrogen peroxide the x-ray treatments need to be frequent to produce more of the gas. This was found to be necessary in some of these cases.

Another theory of the action of the x-ray is that it causes the tissue to throw out a protein which may be resistant to the toxin of this organism. The x-ray could have acted as a catalytic agent by aiding the serum to act on the toxin in those cases in which it was given but this theory is not tenable in the last case where no therapeutic serum was given.

The technic of the x-ray treatment is 88 kilovolts peak, 5 milliamperes, 40 centimeters distance from target to skin, with 0.5 millimeter of aluminum as a filter for three minutes over each area. This single treatment gives 45 "r" units. This therapy is such that it may be given with most portable machines and hence may be available in many institutions where radiographic work is ordinarily done. When using a fine focus radiator tube the treatment is given for thirty seconds and then stopped for thirty seconds to allow the tube to cool and not overheat it. Thus the treatment is resumed with intermissions until six exposures of thirty seconds each are made and thus the three minutes of time is attained without damage to the equipment.

The serum used was made by Parke Davis and Co. and was of the mixed type containing 10,000 units each of the B welchii and B vibron septique organisms.

The following cases are presented for consideration having received the above described treatments:

Case 1. This case was x-rayed almost daily to watch the amount of gas in the tissues in order to study the results and so that action might be taken if indicated. The details are as follows. Male, aged 15 years, June 3, 1933, while attempting to climb on a tractor fell under the plow following it, sustained a compound fracture of both bones of the right leg. Nearly all of the peroneal muscles were severed in the accident and dirt was ground into the wound. The patient was admitted to the hospital in shock and put to bed immediately. Hot boric acid packs were applied continuously to the leg.

He was given Parke Davis and Co. mixed prophylactic tetanus and gas bacillus serum.

By June 6, three days later, the leg appeared in good condition and the patient appeared well in general with his temperature 99.6 F. and pulse 80 per minute. Under ethylene anesthetic the lacerated muscles were sutured with chromic catgut, the skin was closed with fine dermal sutures, and a Steinman pin was thrust through the os calcis for traction. After he was replaced in bed and traction was applied an x-ray of the fracture was taken. This initial x-ray showed gas bubbles in the tissue which were believed to be air at the time.

June 7, 4:00 A. M., the temperature was 102.6 F, pulse 100, and the leg painful and swollen. 8:00 A. M. two skin sutures at the anterior end of incision were removed, permitting some thick yellow pus to be discharged. Hot boric packs were reinstituted. 8:00 P. M. crepitation of tissues was first noted and the discharge had become thin and dark in color, containing gas bubbles and had the characteristic odor of gas gangrene. The skin over the entire leg anteriorly in the lower half down to the foot was black. Cultures from the depth of the wound contained large numbers of B. Welchii. The remaining skin sutures were removed and 8000 units of each type of combined serum was given intravenously. The temperature was 103.6 F. pulse, 120. The administration was stopped on account of the serum reaction.

June 8, 10:00 A. M. the temperature was 99.8 F. pulse 88, no crepitis was felt in the tissues. Radiograph showed less gas in the tissue.

12:00 A. M. a marked increase in toxemia and discharge had developed and more crepitis was present than before. The temperature was 102.8. 7000 units of serum was given intravenously with a severe reaction resulting.

2:00 P. M. The temperature was 101.6 and the patient was very toxic and hard to manage, the Steinman pin broke in two.

3:00 P. M. an x-ray treatment was given.

June 9, the temperature had dropped to 100.6 F., pulse to 100 during the night but at 8 A. M. the temperature had risen to 102.2, at 10:00 A. M. an x-ray showed gas bubbles confined to the site of the fracture. The patient was less toxic. Two x-ray treatments were given one at 10:00 A. M. and one at 3:00 P. M. Between 8:00 P. M. and 12:00 P. M. the temperature dropped from 102.4 F to 100.6.

June 10. The temperature fell from 100.6 F. at 2 A. M. to 98.4 the next morning at 2:00 A. M. The pulse remained at 100 all day. Granulation was noted at the edges of the skin, the discharge was reduced, the odor was less pronounced and the patient appeared in better condition, with less toxemia. One x-ray treatment was given.

The patient was discharged from the hospital at the end of the eighth week.

Eight x-ray treatments in all were given and the patient improved rapidly. Not much effort was made to extend the leg because of the broken Steinman pin, which had a flaw in it. There was not sufficient surface below the injury to apply traction and oppose the frag-



ments. Roentgenographically the orthopedic results are not so good but at the present time the leg is completely healed except for one point where there is a slight sinus due to sequestrum from a fragment of bone off the fibula. The patient has no foot drop and is able to walk with but a very slight limp.

Case 2. Mrs. H. aged 66 years, entered the hospital in severe shock with multiple lacerations on the left forearm involving the superficial circulation, tendons, nerves as well as the muscles from the wrist to the elbow. This happened in a bus accident at 5 A. M. July 15, 1933. The pulse was poor and irregular. The immediate prognosis was bad. At 5:00 P. M. an x-ray of the left forearm showed a fracture of the radius and gas bubbles out in the tissue. This was mentioned to the surgeon attending. The next day the arm was gangrenous and black and the shoulder girdle muscles were red and black, and showed signs of beginning involvement. The left arm was amputated six inches below the shoulder joint because of the many lacerations of the arm and forearm as well as the presence of the gas gangrene. Immediately after operation an x-ray treatment was given the involved areas from the front and back. The temperature was 105.6 F. and the patient was quite toxic. Gas gangrene serum was given to the extent of 6000 units. A culture from the wound was positive for gas bacillus. Two treatments were given each day for four days, one in the morning and one in the afternoon. Then one treatment was given on the next two days. A total of ten treatments were given in six days. After the third day the temperature was not above 99.8 F. again. Six and one half weeks from the time of entering the hospital the patient was discharged with the stump of the arm healed across.

Case 3. Mr. L. aged 72 years, was in an automobile accident and had a laceration on the posterior aspect of the left arm from just above the condyles of the humerus to the posterior axillary fold. The triceps muscle was torn from its tendon and split longitudinally into four or five pieces. The humerus, ulnar and radial nerves were bared for a length of about 25 cm. The skin of the dorsal surface of the hand was torn from just above the hypothenar eminence downward to the knuckles and above the thenar eminence. The skin on the forearm was pushed upward about 15 cm. The fascia had dry soil ground into it. Prophylactic mixed tetanus and gas bacillus serum was given. Both areas were cleansed with normal salt solution and mercuriochrome, alcohol and acetone. The muscles were sutured to their tendons loosely and the skin on both areas was sutured with interrupted sutures. Gutta-percha drains were inserted into the wounds. Twenty-four hours after admission a small bleb was noted on the distal end of the radius, which showed crepitation on pressure. There was a foul smelling gray discharge from the wound with the characteristic gas bacillus odor on the next morning. The skin on the back of the hand and the ulnar side of the forearm was black. Cultures from the bleb and drains showed the presence of *B. claudridium tertium*. All skin sutures and drains were immediately removed and 10,000 units of serum was administered. An x-ray treatment was given and

continuous hot wet boric packs over the entire arm were instituted. There was enough healing in the lacerated skin that it did not open except where the drains had been inserted. An x-ray showed gas bubbles all through the arm and forearm. Two x-ray treatments were given the next day and after the third treatment there was a sharp line of demarcation between the healthy and necrotic skin. On the fourth day he was given one x-ray treatment and 10,000 units more of serum. On the fifth day after the accident his temperature and pulse had returned to normal. He was given two more x-ray treatments on the next two days, and was discharged from the hospital at the end of two weeks in good condition. At the present time he has about 75% use of the arm and hands.

Case 4. Mr. N. aged 20 years, was attempting to cross a field when he was gored by a bull. As a result of this goring he had a ten inch laceration across the abdomen through the skin, subcutaneous tissue, and the right rectus muscle down to but not involving the peritoneum. The wound had hair, leaves and other debris in it. There was also a four inch laceration in the left axilla with hair in it also. The wound was cleansed, muscles and fascia were sutured, and a rubber drain was placed in position.

Gas in the tissue with crepitus was noted 24 hours later. Serum was given on the second and third days, 10,000 units each time. The temperature was 102 F. and the patient was restless on the second day when x-ray treatments were given and the highest temperature recorded was 100.8 F. Thereafter the temperature did not go above 101.2. Eight x-ray treatments were given to the right side, where the crepitus was noted, in four days time and the wound appeared almost well.

On the tenth day after the accident and six days after the last x-ray treatment was given gas and crepitus developed on the left side of the abdomen which had not been previously irradiated. Three daily treatments to this side, with no serum, were sufficient to cause the crepitus to disappear and relieve symptoms. Ten days after the last x-ray treatment the patient was discharged as well.

Case 5. Miss W. aged 21 years, had an appendectomy, bilateral salpingectomy and right oophorectomy by the same surgeon who treated case 4, above, the same morning. He changed his gown and gloves, however, and if contamination occurred the mode was not known. Since she was dressed in the wards by the same nurse after the operation, the direct means of infection is unknown, but three days after the operation she had a foul-smelling discharge from the incision. A culture from the wound was positive for gas bacillus. One dose of serum of 10,000 units was given the day the odor was first noticed which was the third post operative day. The temperature was 101 F. and the patient was restless. Two x-ray treatments were given each day over the incision for the next four days. The temperature was never up to 101 F. again. The discharge and odor were quickly stopped. The patient made an uneventful recovery and was discharged as well on the 21st postoperative day.

Case 6. I was called in consultation to see a young soldier on a Sunday in November who had been accidentally shot, by an army rifle, through both thighs. The bullet entered the left thigh and tore a large hole through it at least two inches in diameter on the side from which it emerged. The injury to the right thigh was not so great and the bullet was stopped by the right femur. When I saw the young soldier, four days after the accident, he had had the left leg removed near the hip in an attempt to stop the gangrene below that. He was delirious and his temperature was above 102 and his pulse about 140 per minute. He had had at least four blood transfusions and the prognosis was very bad. Three or four injections of 10,000 units of gas gangrene serum had been given also prior to my seeing him.

X-ray treatment was started and two treatments were given that Sunday and two on Monday. The doctor wrote that the odor had decreased considerably and the boy was again rational but very weak. He was given a treatment on Tuesday and appeared to be doing well until near noon. He was given some more serum then. He then made a change for the worse and died late in the afternoon. It is believed by one doctor attending him that he died from shock or a combination of shock and reaction from the serum which may have had an anaphylactic reaction. In the beginning he did respond quite well to the x-ray therapy but the four day delay was too much to be overcome in addition to the other factors to be considered.

Case 7. Mr. O. was fired upon the evening of Feb. 6, 1934, and a bullet passed through the left buttock injuring the gluteus maximus muscle. He was given tetanus and gas bacillus antitoxin prophylactic combined, when he was given first aid. The next morning there was evidence of gas clinically. No effort was made to sustain this diagnosis by bacteriological examination. The tract of the wound was opened wide and a debridement done, including the removal of portions of the gluteus maximus muscle. The wound was dressed wide open and packed with hydrogen peroxide. He was given two x-ray treatments that day, one in the morning and one in the evening, and for the next four days until he had received seven treatments in all. No serum was given in the treatment at all, only the prophylactic dose. The temperature ranged between 100 and 101 F. for the first week and the pulse reached its height on the fourth day of 104 and dropped to 80 by the end of the first week. It was normal after this for temperature and pulse. A secondary closure was done two weeks later and the patient was discharged March 5, 1934, with the wound healed and well so that he was able to return to work.

This case is reported through the courtesy of Dr. S. B. Herdman who saw with me the patient who died. It was there that he got the technique and hence my reason for including it in this series.

#### CONCLUSIONS

1. All patients recovered whether the wound was in an extremity or not, with one exception:
2. The patient who died did show signs of

improvement for a time and it is believed that the shock of the operation, delay in using effective treatment and possibly an anaphylactic reaction were the causes of his death.

3. The serum used was supposed to be specific for *B. Welchii* and *B. vibron septique*, whereas two cases had *B. claudridium tertium* infections. Since the serum was not positive for this organism it may not have had anything to do with the results and the x-ray may have been entirely responsible for the cures.

4. The x-ray treatments are a definite aid to recovery from gas gangrene infections.

5. The mode of action of the x-ray is not known although more is learned about its action with each case treated.

*Comment.* Should new cases be found we intend to try early x-ray treatment alone and use the serum only if results are not favorable in a reasonable time.

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#### DISCUSSION

Dr. I. S. Trostler, Chicago: I want to compliment the essayist on reporting several interesting cases, very much in detail; but I fear that I must take exception to several things that he said. One of these is the description of his technique, wherein he mentions "inches of spark gap." That is not at all scientific because spark gaps differ, whereas kilovolts are always the same, and such a description cannot under any conditions be accurate.

Another point that I take exception to, is the mention that portable apparatus may be used for this therapy. I fear that statements like that are liable to lead men to attempt to administer roentgen therapy with portable apparatus, and such action is bound to throw our efficient therapeutic agent into disrepute.

Also, the fact that all except two of the essayist's patients had had prophylactic or antitoxic serum administered must reduce the value of this report, from the roentgen therapy aspect; because the producers of the sera will—with ample justification—claim that their sera effected the cures.

Dr. Roswell T. Pettit, Ottawa, Ill: During the war I had charge of an experimental laboratory for wound bacteriology, for the purpose of culturing wounds before they went into the hands of the surgeon. Afterwards associated with a French pathologist, Professor Sacquefre, the discoverer of one of the organisms causing gas gangrene, we procured serum from the French Army for use in American soldiers. We used



serum in alternate cases of serious wounds that would likely cause gas gangrene.

It was our purpose to secure 100 cases treated with serum and 100 control cases of exactly the same sort, with the idea of presenting this data to the American authorities and get them to produce serum. The armistice came along and interfered with our plans, after we had collected forty cases.

In the forty cases that received serum as compared with the forty cases that did not receive serum, we found that the serum was of very great value. I cannot remember the statistics but my paper was published in the *Journal of the American Medical Association* in 1919. There were something like four or five times better results in the serum-treated cases than in those that did not receive the serum, but, as I recall, even in our best results, we only cured about one case out of three.

The number of cases as reported by Dr. Faust is small. The conditions of civil life, of course, are very much different from those met with during the war. The length of time in getting patients to the hospital, getting them under care and observation, may account for Dr. Faust's remarkable results, but I think he has a lead that is well worth investigating.

This is a subject that is readily amenable to experimental study. Gas gangrene is easily produced in animals and we ought to be able to study this question of the value of x-ray very easily and determine beyond a question of a doubt whether or not x-ray is of any value.

Dr. J. J. Faust, Decatur, Ill.: With regard to the use of the 5-inch spark gap statement, I will simply state that my machine happens to have the markings, 3-inch, 4-inch and 5-inch spark gap. It was for that reason I stated it that way.

It so happens, too, that all of my cases were treated by a portable machine. We did not care to move those patients from their rooms to the x-ray department and take the chance of contaminating anything. The arm which was amputated was amputated in the room because we did not even take the chance of contaminating the operating room.

The case that was reported by the other doctor was also treated by a small portable machine.

## SANITATION OF THE COUNTRY HOME

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At this season of the year, countless numbers of people complete plans which they have been making during the preceding winter and spring and go on a vacation.

One of the foremost factors to be considered for this event is the sanitary condition of the camp, lodge, or summer home. This is of spe-

cial importance in cases where the camp chosen is frequented by a large population. This matter has been greatly simplified, as the efficiency of our local and State sanitary officers has resulted in changing many a disease infested community into a healthy resort, free from all contamination.

During the Spanish-American War in 1898, the mortality from diseases acquired in camp duty exceeded by a large number those killed on field of battle. One camp known as Chocomaqua Park in Georgia, was simply infested with disease, due to flies, mosquitos, and other insects: some twenty years later this same spot became the training camp for a majority of the medical departments of the army during the World War, but in the meantime the picture had changed. The swamps and polluted streams had been drained, all breeding places for flies and mosquitos had been destroyed, installation of scientific sewage systems had been made, with the result that even with the large population cared for, there was absolute freedom from all infectious fevers.

There is no longer any excuse for these former epidemics to occur. The principles involved in modern sanitation are very simple and interesting. We have learned to make use of natural resources at hand to solve the problems of prevention. As a result of constant instruction in all matters pertaining to health problems given through the press, platform and radio, these are no longer mysterious, but the layman of today understands the principles. By making use of these factors, it is possible to render every locality free from contamination and infectious diseases which formerly were so serious.

Our forefathers were acquainted with the advantageous use of fertilizer to increase the yield of crops, but they did not know the reason for this disintegration, or breaking down of the different substances into their original elements. Today every school boy and girl is acquainted with these processes, rendered possible by the presence of bacteria, and knows that all excreta is poisonous, or toxic, to the organism from which it comes. Upon this basis of knowledge, sanitary engineers have developed the efficient sanitary systems found in every great city and hamlet today.

But it is in the isolated locality, distant from these improvements that we are especially in-

terested at this moment. Every camp or country home should have a suitable sewage system for the welfare of the occupants. Should you be fortunate enough to have a country or lake home, be it small or large, by applying the same principles used in the large systems, an individual basin or septic tank can be installed and operated in every home with perfect results. For efficiency, running water is necessary. Even this can be obtained in many ways.

An electric pressure pump is of course the ideal, but if either because of the expense, or absence of power, this is impossible, a hand or power pump adequate for the needs can be used to elevate the water to a tank. The use of a barrel, several connected in a series, or some other type of tank, placed on the roof, or in some adjacent elevated position becomes necessary. If you are fortunate enough to be located near an elevated spring the use of a ram can readily be made, to elevate the water to the tank. If no well is at hand, collection of rain water into a tank will be advisable, and if this is large and high enough it will serve the purpose for a gravitation water supply.

Any of these systems will furnish enough water pressure for the purpose of establishing a sewage system. The pipes and drains empty into a reservoir of various types.

In homes, where the well is used as a source of drinking water, it is necessary to construct a specific type of tank to adequately dispose of sewage. Either a cesspool or a septic tank may serve the intended purpose, but having different characteristics, the individual circumstances must be considered.

A cesspool is merely a hole in the ground, ten to twelve feet deep and four or five feet in diameter. This is usually lined with stones. It is intended that the solid materials will be broken up by the bacteria and form liquids, which together with the liquid parts of the sewage will soak into the ground, consequently if this type of system is installed, at a distance less than one hundred feet from the well, we may have a very unsanitary method of sewage disposal.

The so-called septic tank on the other hand removes all these objections: in it the solid materials are completely changed into liquids which pass from one compartment to another and insure complete decomposition by the bacteria before they are carried out and drained into the soil.

The principles applied in the septic tank, regardless of the type used are the same. They all contain two or more chambers, separated by a partition which permits overflow near the top. The sewage from the toilet and elsewhere empties into the first chamber which is constantly filled to the level of the upper edge of the partition. No chemicals or other types of disinfectants are necessary to sterilize the material, as the bacteria cause constant disintegration to take place. A film known as the "Smutz Decke" forms on the upper surface of the fluid, increasing the efficiency of the bacterial destruction. These septic tanks may be constructed of various materials. They can be made of planks, making a water tight box with inlet and outlet, and a partition of suitable size for the population to be served. As the wood, even though coated with tar has a tendency to rot and cause leakage, one constructed from cement is far more desirable. The metal septic tanks, however, which can be purchased at a small figure, ready for installation are better in all respects and longer lived. The danger of leakage from rotting or cracking is more remote. Consequently this installation should be made whenever possible. In case this description of the principles applied in the septic tank as given are not clear, I shall be pleased to answer any questions relative to the principles involved, sent in care of this station.

Another factor to be considered is the disposal of garbage from the kitchen and table. If you have a wood burning stove the matter is simplified to a great degree, otherwise all garbage should be burned, or buried in such a way as to protect it from being uncovered by animals, thus becoming exposed to flies and other insects. Dig a deep hole in the ground, away from the source of water supply, cover with a suitable lid and keep it closed. Occasional sprinkling with dirt or sand, will hurry disintegration and prevent odors from arising.

I have said nothing about the source of your water, milk, and food supply. These important items must be had from reliable sources, before using them.

Upon your return from that fishing trip, one of the pleasant sequels is the cleaning of the catch. Careless disposal of the trimmings will tend to attract flies and other insects. Consequently nothing of this nature should be per-



mitted to be exposed. Buried in the ground it will act as an excellent fertilizer. The Indians knew of this, as they would always place a piece of fish by every grain of corn to stimulate rapid growth.

If you are making use of the various tourist camps which are at the disposal of the public throughout the land, you should adhere to all rules of sanitation as far as possible. Use the refuse depositories when these are provided and do your bit to keep things clean for all those who are due to follow. In traveling and working about the camp the hands easily become soiled. The use of soap and water prior to eating is therefore more necessary here than when at home.

The desire to rough it must not be interpreted as synonymous with uncleanness. Carried out as nature, which is in itself very cleanly, intended it, the vacation will be a happy one.

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## MODERN CONCEPTION OF CANCER OF THE LARYNX

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Progress connotes continuous change. In a progressive science such as medicine, it is not unusual to find a changing conception in some phase or another of any pathologic process that is clinically treated as a "disease." It may be profitable at one time or another to pause and critically review our present day conclusions regarding a pathologic process in comparison to what was acceptable a decade ago, in order that any worthwhile change might find application in daily practice. We have been forced to accept certain innovations in our ideas concerning carcinoma of the larynx in the past ten years and it is our intention to review these and present them for what they are worth. No detailed statistics will be given, but only those broad, and what are to us important observations and conclusions, will be reported. It is to be stressed that no claim for originality is made for any of the following as the material is only presented with the idea of describing those changes that have appealed to us most strongly in our management of carcinoma of the larynx.

*Etiology.* A careful review of most of our material could establish no factual data with any significant bearing on the etiology. It is strange to note that only a few of our patients pursued any vocation that might lead to vocal abuse. A review of the vocational activities of our patients shows that singers, hucksters, lawyers, public speakers and the like, were conspicuous by their absence. Smoking apparently did not play an important role as many non-smokers, including several women, who did not indulge, were victims of this affliction. Addiction to drink was acknowledged by only a few. Heredity, so often stated as a predisposing cause, apparently played a minor role in our series of cases. The development of malignancies from precancerous lesions such as keratosis, papilloma or lues is likewise lacking in confirmation in our series. Few, if any, of our cases had such lesions prior to the development of their malignancy, so far as we could determine by history. Study of the age incidence shows that carcinoma of the larynx occurs most frequently between fifty and sixty years of age, although the decade of thirty to forty years also has a fair incidence. Our youngest patient was twenty-nine years of age and we have had several in the early thirties. The statement that carcinoma of the larynx occurs in older individuals requires qualifications. Early middle life and even the late twenties are not immune. Cases have even been recorded in young people, mainly women, of fifteen, sixteen and eighteen years of age.

*Classification.* The site of origin, as a rule, was difficult to determine in the great majority of our cases. The largest number seen by us were extrinsic, either previously so or by extension.

From a surgical point of view we designate as intrinsic only those growths that involve the true or false cord, or the ventricle of Morgagni in the anterior two-thirds of the larynx. Growths that arise from the epiglottis, aryepiglottic folds, arytenoids, post-cricoid area, pyriform sinuses, or the posterior third of the true and false cords and primary intrinsic growths that involve these areas by extension are designated as extrinsic. From the point of view of surgery, the terms extrinsic and intrinsic are synonymous, to us at least, with inoperable and operable. It is, of course, acknowledged that certain extrinsic growths may be amenable to surgical intervention by lateral or trans-hyoid pharyngotomy.

The inclusion of neoplasms of the posterior third of the true and false cords as extrinsic and unsuited for laryngectomy may excite comment. Most of our cases of carcinoma of the larynx in which the posterior third of the larynx was involved, had a recurrence after a total laryngectomy forcing us to include these in the extrinsic growths that are unsuited for laryngectomy. The mixed types represent those malignancies that are anatomically both extrinsic and intrinsic. Most of our cases are of these mixed types. This is a most lamentable situation. It is realized that in all probability many of these cases were originally extrinsic and therefore inoperable from the start, yet, our experience has been that most of these patients had been neglected for a long period of time. The greater number gave a history of hoarseness persisting from several months to well over a year. It is not difficult to conceive that were they all observed at the initial onset of the hoarseness they might have been seen in the intrinsic and, therefore, operable stage.

It is indeed a serious indictment of our profession to note that practically seventy-five per cent. of the cases had been neglected to such an extent as to be inoperable. A careful consideration of our case histories has shown that the fault lies both with the laity and the profession. The former have been negligent in procrastinating with hoarseness for a long period of time before seeking the aid of a physician. But the profession has also been at fault. Many of our patients were under the care of a physician, most frequently the family practitioner, who treated them for chronic laryngitis, without ever once using a laryngeal mirror. To our minds this is reprehensible. It should be our duty to instruct the family physician, as well as the lay world in general.

We shall have attained success when the patient will seek immediate advice if afflicted with hoarseness that persists more than a week or two. Furthermore, the informed physician will perform a mirror examination of the larynx in any patient complaining of hoarseness and have a biopsy performed if any suspicious lesion is present; obviously if nothing frankly suspicious is seen, he will still keep the patient under careful surveillance so long as the hoarseness persists. In no other internal portion of the body is such

an early warning apparent to the patient. The laity must be instructed to be "Hoarseness conscious" as a sign of cancer of the throat, just as they have become "lump conscious" in cancer of the breast.

*Pathology.* A review of the gross pathological features of our material has taught us that carcinoma may simulate macroscopically many benign and inflammatory lesions. We are forced to admit that we have erred several times in arriving at a diagnosis of tuberculosis or lues only to find ultimately that we have been dealing with a malignancy. We have seen even apparently benign papilloma or fibroma reveal a malignant structure under the microscope. We have also experienced the co-existence of carcinoma with tuberculosis or lues and, in fact, have seen one specimen showing all three processes. We have, therefore, promulgated the following dictum:

"A biopsy is indicated in every case of laryngeal pathology in which carcinoma is diagnosed, suspected or even remotely considered." We are well aware of the theoretical possibility of hastening the spread of a malignant lesion by the trauma incident to biopsy and we make it a condition of the procedure that the patient permit immediate surgical intervention if the report is returned as malignant.

*Histology.* The histological characteristics of carcinoma of the larynx have been repeatedly described. We have reviewed a series of microscopic sections of seventy-two cases seen within the past five years, and have found them to be squamous cell types in sixty-nine instances and transitional cell epitheliomas in three instances. Lympho-epithelioma has not occurred in this small series.

The histological characteristics are extremely important to the clinician. We, as well as others, have written on the slow growth, dilatory extension and metastasis and the relative resistance to irradiation that characterize the adult differentiated squamous cell growth in contrast to the rapid growth, early wide, diffuse metastasis and relative radio-sensitivity of the non-differentiated embryonic carcinomas, especially the transitional and lympho-epithelial varieties. As stated before, practically all of the epithelial malignancies of the larynx grow slowly and metastasize late. The explanation, in the past, accounting for the re-



striction in spread of a laryngeal neoplasm was that it was enclosed in a cartilagenous box devoid of lymphatics. That this assumption does not have a factual basis is obvious. The cartilagenous box, as is well known, is deficient in cartilage, superiorly, inferiorly and posteriorly. Moreover, recent investigation has shown that the cartilage has a rather plentiful supply of lymphatics. The true explanation undoubtedly lies in the biologic characteristics of these adult fully differentiated neoplasms.

*Cervical Adenopathy.* The presence of lymphadenopathy in association with a malignancy of the larynx offers a poor prognosis. Yet many believe that such a condition is not altogether hopeless. Crile in the United States, and Trotter in England have popularized the surgical removal of malignantly infiltrated cervical lymph-nodes and reported some degree of success. Our experience has been a most melancholy one. No patient afflicted with a carcinoma of the larynx and exhibiting palpable lymph-nodes is alive today. Seven patients with a primary lesion of a larynx that was intrinsic, surgically speaking, and presenting palpable lymph-nodes were operated upon by complete laryngectomy and bilateral block dissection of the lymph-node bearing areas of the neck. No one survived any appreciable length of time. Apparently the theoretical assumption that palpable lymph-nodes are frequently enlarged by an infectious process, rather than malignant metastasis, is not borne out in our small experience. We are forced to conclude that palpable cervical lymphadenopathy makes for a hopeless prognosis, no matter how favorable the laryngeal lesion may appear, and is, therefore, a contraindication to surgery. We have also treated metastases in the neck by irradiation, x-rays, radium collar and interstitial radium emanation seeds with similar lack of success.

*Motility of the Vocal Cord.* Impaired motility of the vocal cord has been repeatedly and unfortunately stressed as an early sign of malignancy. It has further been affirmed by many writers that the motility of a cord was a differential characteristic that aided in the distinction between a malignant and benign process on the false assumption that a malignant growth was associated with a more or less fixed cord and that a freely motile cord tended to exclude

malignancy. We have seen a number of cases of intrinsic carcinoma without fixity of the vocal cord and in which hoarseness and a visible tumor were present. Our conclusions are obvious—impaired motility is not an early sign of malignant disease of the vocal cord and its absence does not indicate the presence of a benign process.

A fixed or poorly motile cord was found in every case in which a recurrence was noted after laryngectomy, and all cases of the mixed type of intrinsic and extrinsic malignancies, that we have termed extrinsic and inoperable, were associated with a fixed cord. We, therefore, are forced to assume that malignancy may be present in a freely motile cord, that fixity speaks for progression of the lesion; that a fixed cord contraindicates laryngofissure and influences the prognosis for the worse if laryngectomy is employed.

*Treatment.* The modern treatment of carcinoma of the larynx resolves itself into a consideration of surgery, irradiation, or both.

*Operation by Laryngofissure.* This procedure appeals to us as the operation of choice. It is, when compared to laryngectomy, non-mutilating, relatively free from marked post-operative shock, and usually associated with the retention of a serviceable voice. Unfortunately it is indicated in only a small percentage of the cases observed—in our experience a very small percentage indeed. In our opinion it is indicated only when the neoplasm is small and restricted to one vocal cord. The disease must not have invaded either the anterior or posterior boundary of the cord and the cord must be motile. The lesion must, furthermore, be an adult squamous cell growth with no palpable glands present in the neck. When these indications are met the operation should prove adequate for a lasting cure in a high percentage of the cases. It is indeed unfortunate that we are not able to see more of our malignant laryngeal cases in such early stages that this procedure will effect a cure.

The technique has been so well described by Sir St. Clair Thompson and others that it leaves little to add. We have modified it in a minor detail using an electrically driven circular saw devised by myself for performing the division of the thyroid cartilage.

*Laryngectomy.* This procedure is still a thera-

peutic sheet anchor in the management of these unfortunate individuals. The indications for its use are precise. Any intrinsic laryngeal malignancy that is not suitable for laryngofissure may be treated by laryngectomy with some hope of success.

The technique of the surgical extirpation of the larynx has been so well described that it would be superfluous to repeat it here.

*Irradiation Therapy.* Our experience, limited it is true, has consisted in the use of deep x-rays and interstitial application of radium into the growth after a window resection of the thyroid cartilage or some other surgery of approach has been performed.

Our experience with irradiation therapy in the past has been a most unhappy one. Aside from the frequent complication of dermal and cartilagenous dystrophies we have observed little if any effect upon the growth itself. Within the past few years, however, important technical advances in the use of these potent agencies has enabled us to observe more encouraging although not overly impressive results.

We are interested in two methods at the present time. One is the use of the four gram radium pack or so-called bomb. This consists in the use of four grams of highly screened radium at a distance of six to fifteen centimeters, utilizing several portals of entry. Tremendous doses may be administered to a lesion within the larynx apparently without the disastrous sequelae noted in our earlier experience. We have noted the disappearance of the lesions treated in a number of cases but unfortunately recurrences have occurred in some and the method has not been used over a sufficiently long period of time to determine definitely its true value.

The second method is Coutard's protracted fractional dosage with x-rays. The results of this method have been more promising although primary disappearance of the growth is frequently followed by a recurrence. Certainly the results from both of these methods do not compare with what we can expect from laryngofissure and laryngectomy in properly selected cases. Yet these methods have superseded the use of interstitial irradiation with radium or radium emanation in our practice.

We have, however, been tremendously impressed by some of the primary disappearances

of extensive extrinsic, inoperable lesions and use the Coutard technique in all inoperable cases.

Irradiation therapy today then is in a more promising position as regards concrete results, especially with the Coutard technique. Let us hope that time will realize the promise which it offers.

## DISCUSSION

Dr. H. L. Ford, Champaign: I would like to thank Dr. Guttman for this very illuminating article. I think it is beside the point for a downstate man to discuss a paper of this type. Some one from County Hospital or elsewhere who has a wealth of material from which to collect cases and study them in detail, with special reference to the use of radium, is better qualified to do so. In four or five years they might be able to prepare a paper with results comparable to this.

This is certainly a painstaking survey of cases of carcinoma of the larynx which have come under observation of Dr. Guttman and Dr. Beck, and Dr. Guttman should be complimented for his unbiased opinion and the logical conclusions drawn from this series. In every discussion of carcinoma of the larynx the first consideration must be early diagnosis. The literature is replete with warnings of chronic hoarseness and the danger of procrastination. In the rather rare instance in which the growth starts above or below the vocal cords, there may be marked advance with lymphatic involvement before the patient realizes his danger. It is therefore fortunate that the great majority cause hoarseness by originating on the surface of the anterior two-thirds of the cord, their proximal walls, the ventricle of the larynx, and the anterior commissure.

MacKenty has never seen a cancer start in the inter-arytenoid space, so frequently the seat of tuberculosis. Also, he mentioned that a common stumbling block was the presence of a positive Wassermann, and warned emphatically that ure laryngeal syphilis recedes with unmistakable rapidity under anti-luetic treatment. For extrinsic cases particularly, it is to be hoped that the more frequent use of direct examination, including hypopharyngoscopy, and suitable cancer propaganda, will bring about a much to be desired earlier diagnosis.

There is general acceptance of the value of biopsy, although there may at times be limitations to its value, as attested by the failure of Virchow to diagnose malignancy from three submitted specimens in the case of Emperor Frederick II. Care must be exercised in securing a portion of the base of the lesion as well as part of the normal tissue. Clerf recommends a rapid paraffin method with serial sectioning, which gives a reliable report at the end of eighteen hours, rather than a frozen section, stating that the most difficult and important part of the procedure is the removal of the specimen for study. The consensus of opinion seems to be in favor of biopsy—most authors, including Bloodgood, Jackson, and Ewing, feeling that the fear of extension or dissemination has been over-emphasized.

Surgical technic having been established to a high



point of excellence, it has fallen to the realm of histopathology and irradiation therapy to record the advances of more recent years. For several years, and especially since the work of Broders and McCarty, pathologists have based their interpretation of the benign or malignant features of a tumor upon its ability to mimic normal tissue, or to grow in a wild undifferentiated, anaplastic manner. One difficulty arises, however, in that not all pathologists follow the same method of tumor grading.

If, accepting Broder's classification, we recognize four types, one to four—one having 75 per cent. of differentiated cells tending to mimic the normal cell type, and type four having 25 per cent.—to no differentiated cells, with the intermediate classes between; while certain relations between the histologic structure and the response to radiation are recognized, notably that type I tumors are radio-resistant, and type IV are relatively radio-sensitive; yet exceptions are encountered wherein the radiation response may be directly the opposite of what is anticipated. It is therefore evident that factors other than cellular differentiation have an influence on the relative radio-response of a given tumor. The blood supply, the infiltrative character of the cells, the stroma, the lack of reaction on the part of the surrounding cells may, according to Douglas Quick, alter the response to irradiation, although it does not change the histologic grade. This author further states that—"Grading is a problem of histology alone. Classification of relative radio-sensitivity is a matching of histological and clinical pictures. Determination of probable response to irradiation is based on a much broader background."

Grade I tumors are usually the more radio-resistant, slower in growth, and tend toward some degree of localization. Metastases are late, and tend to remain localized to adjacent areas. It is in such cases that surgery has its greatest application. Anaplastic, or grade IV tumors, metastasize early and widely, and may extend through the blood stream as well as through the lymphatics. The metastatic lesions oftentimes are more pronounced than the primary. According to many recent writers these undifferentiated growths are obviously not adapted to surgery, which even in its radical form is only a local measure. Among other factors which influence radio-sensitivity are infection, anemia, the age of the patient, the age of the tumor and its location.

There are exacting indications for laryngofissure and for laryngectomy, as so ably portrayed by Dr. Guttman. When one correlates this with statistics from Thomson and others where tumor grading is used and percentage recurrence noted in the various grades (72 per cent. in grade IV, 26 per cent. in grades II and III, and 6.6 per cent. in grade I—the latter group, however, comprising only about one-fourth of the cases suitable for laryngofissure) one cannot help but feel the very definite limitations of surgery alone. On the other hand, to date the statistics on radium and x-ray therapy, with five year arrests, are anything but encouraging. It is to be hoped that greater success will follow the recent advance in radium therapy—the mass radiation with the external radium

pack properly screened permitting the use of 60,000 mg. hours to each side of the neck, in a constant unbroken series of treatments over a period of 28-35 days; also the high voltage external x-radiation, using the technic of Coutard of the Regand Clinic in Paris.

Dr. Francis L. Lederer, Chicago: I am sure we all enjoyed this excellent summary of an interesting subject. Dr. Guttman in going over these various etiologic factors tried to bring out some of those stressed in the literature, and makes a point that I think should be borne in mind by all of us, regarding the factor of smoking. I have seen four cases of carcinoma of the larynx in women, in no instance did they smoke. I failed to gather that he said much about the dentures and poor dental hygiene. Boot's statistics of a survey at County Hospital covered the etiology very well. He went into a careful analysis of the types, the factor of syphilis, etc., and yet I do not think that after as careful a survey as this one made at County Hospital, you have much light thrown on the etiology of carcinoma. This discussion of intrinsic and extrinsic types recalls an article given recently by Perlman and Sonnenschein. The idea of trying to evaluate the pathology is excellent, but their conception of what constitutes intrinsic and extrinsic is entirely different from what Dr. Guttman or Dr. Beck might offer. I was sorry to learn that he had such experience with posterior one-third lesions of the vocal cord. I hope that this is only his personal experience, as we have always looked upon these as favorable cases. If 75 per cent. of their patients were operable, that does not compare favorably with ours. At the Research and Educational Hospitals we see less than 1 per cent. of cases which could be adequately judged in the intrinsic or operable group. MacKenty found 80 per cent. and he even refused to operate on a patient who had had x-ray or radium therapy before coming to him. I would also stress that there is quite a difference between the microscopic and macroscopic picture. Certainly the eye does not see the actual tissue invasion, and that may account for some of Dr. Guttman's bad experience.

The indictment in the neglect of laryngeal carcinoma should be not of the laity or the physician, but of the laryngologist himself. He himself must be hoarseness conscious. The lost art of indirect laryngoscopy for biopsy must be revived. The adenopathy in the mind of a number of authorities is not always associated with a metastatic growth. I think the experience Dr. Guttman cites of metastasis in the neck being quite unfavorable, surgically and with x-ray or radium, compares very favorably with our experience.

Instead of taking sides with the radiologist, we should not take the attitude that radium is a cure-all; we should not take the attitude that the surgical side is the only cure, but perhaps if we were in a position to get together and try to evaluate our findings on some rational basis we could get further by a combined attack. The statistics that now appear with regard to the radium cures have been in the literature for years before the radium bomb cured the cases, even before radium therapy was in the perfected state it occupies today. Surgery of the larynx has its tradition and its cured cases over a period of many years;

radium and x-ray have yet to demonstrate in a large number of cases the permanency and the reliability of effecting a cure.

Dr. Max Cutler, Chicago: First allow me to express my sincere thanks and appreciation for the privilege of addressing your society. I was very much interested in Dr. Guttman's presentation. I should like to take this opportunity to describe very briefly certain investigations which I am conducting in the Tumor Clinic of the Michael Reese Hospital in the treatment of cancer of the larynx.

The Coutard technic of x-ray therapy essentially consists of a protracted method of treatment in which the lesion is exposed to radiation twice daily over periods varying from two to five or six weeks. The total dose is large. In the treatment of cancer of the larynx two lateral fields are utilized, each receiving between 3500 to 4000 R units. The technic which I have instituted differs from the Coutard method, first, in an extension of the factor of continuity, and, second, in the utilization of the more penetrating gamma ray of radium. According to this technic a cancer of the larynx is exposed twice daily for 45 minutes at each exposure with four grams of radium at 10 centimeters distance. The portal varies between 35 and 80 square centimeters, depending upon the extent of the lesion. Treatments are given daily, consecutively, and without interruption for periods varying from 20 to 50 days. The total dose varies between 100,000 and 125,000 to each side of the neck. Treatment is continued until there develops in the mucous membrane around the growth a lesion which is known as "epithelite." By an epithelite we mean a destruction of the superficial layers of the epithelium. In order to produce this characteristic lesion in the normal mucous membrane it was necessary until recently to also produce a similar lesion in the superficial layers of the epidermis, known as an "epidermite." By means of a technical improvement in our new four-gram radium pack, it is now possible to produce the desired lesion in the mucous membrane without producing an open and destructive lesion in the skin.

This method has now been in use almost two years. The time is therefore too short to estimate the ultimate results. The initial effects upon the growth have, however, been most striking. One early, adult squamous carcinoma, limited to one vocal cord, with slight fixation, disappeared completely and the patient is now well almost two years. Several more advanced lesions have disappeared and the patients have remained well for periods varying between twelve and eighteen months.

It is interesting to note that in Coutard's treated cases of cancer of the larynx the percentage of recurrences after fifteen months' freedom from symptoms was almost negligible. Because of this fact some significance must be attached to these results even though the period of time is relatively short.

The one important problem which it was necessary to settle from the outset was whether the normal tissues of the larynx could safely withstand this large amount of gamma radiation. This question we can definitely

answer in the affirmative. There have thus far been no serious damage to the normal structures. The reasons for the safety of the method are believed to be due to the following factors: 1. high filtration, 2. low intensity of treatment, 3. uniform distribution of dosage. It is obvious that if large doses of this character were to be administered during a short interval, a radionecrosis would be certain to follow.

It is important to emphasize that in attempting to estimate the relative merits of surgery and radiation in any form of cancer one must appreciate that the modern and effective use of radium and x-rays is of recent date and can in no way be compared either in principle or in technical execution with the older methods.

Early localized cancer limited to one vocal cord constitutes the ideal setting for radiation therapy as it also does for surgical methods. Until we have an opportunity to demonstrate the effectiveness of this method upon early lesions of this type, it will be impossible to present any comparative statistics. On this basis I should like to make a plea for the opportunity to study the effect of this method upon more cases presenting early lesions, as only in this manner can we hope to make further progress in the treatment of this disease.

Dr. Joseph C. Beck, Chicago: I want to say just one thing that has nothing to do with the voice. You must be all convinced that there has been a great advance in radium therapy, after hearing Dr. Cutler, who was kind enough to come here to address us. This is one of the most important factors in a discussion of our subject. I have had considerable experience up to this time. My time is not going to be very long, and I am afraid I am not going to see the results of this excellent work of radium therapy. Were there time, I would be the first to subscribe to that type of treatment. A carcinoma patient treated as was shown by Dr. Cutler would probably live for five years. If that could be done we certainly would be very glad to have the radiologist take over the work of the surgeon. For with all the improvement in the work of the surgeon there is no comparison to the results from x-ray or radium. You can see because it is squamous cell carcinoma of the larynx and it disappeared promptly. I am looking forward to the perfection of radiotherapy. At the same time I wish to state definitely that until the x-ray and radium experts can show what the surgeons can show in cancer of the larynx, we must continue to operate on these cases, best by the laryngofissure method and eventually by laryngectomy.

Dr. Thomas C. Galloway, Evanston: The best figures for irradiation in cancer of the larynx appear to be those of Coutard showing about 26% of five year cures and those of Harmer showing about the same result with radium locally applied or implanted. On the other hand Jackson reports 88% cures by laryngofissure in selected cases and Gluck-Sorenson from their extensive statistics slightly less. St. Clair Thompson has pointed out that this high percentage of cures holds in carcinoma of the larynx treated early by laryngofissure, with a normal airway and serviceable voice. We should, I think, hesitate to turn such early cases to



any more problematical method until time has proven its value.

Dr. M. Reese Guttman, Chicago (closing): I wish to thank all that have discussed this paper for their very kind treatment. Dr. Lederer mentions Dr. Booth's survey of the Cook County cases of malignancy, and has drawn attention to the high incidence of poor dental hygiene in association with carcinoma. I do not think this situation will apply to the better grade of private practice. One must recall that malignancy as a rule occurs in older individuals, those that are most frequently afflicted with such dental disturbances as pyorrhea and caries. Furthermore, the type that Cook County Hospital caters to shows a high incidence of dental disease. In all probability this is, at best, a minor factor in the etiology of carcinoma of the larynx.

In regard to the intrinsic and extrinsic type, it was stated very clearly that our ideas of intrinsic and extrinsic are based on a purely surgical point of view, and are not the usual customary anatomical ones. Dr. Lederer misunderstood me; it was said that over 75 per cent. of our patients were inoperable. It is the relatively infrequent case that is seen in the early operable stage.

Dr. Cutler has given us a very fine presentation of the radiologic aspects of the problem, and we are, as stated in the paper, extremely interested in the marked progress that has been observed in the fields of both x-ray and radium therapy. Only after a consistently effective technic has been evolved that produces actual results reproducible in the hands of all, can we look to radiation for the treatment of carcinoma of the larynx. The radiologist with his impressive use of the term "100,000 or more" milligram hours may create a false impression in those who are not entirely familiar with the irradiation dosage. Ten years ago when irradiation therapy with radium consisted of buried needles and radium emanation seeds such doses meant something because the radiating focus was in direct proximity to the disease area, but nowadays with the use of a radium pack at some distance from the neoplasm, the statement 100,000 mg. hours, unless qualified by the distance, by screenage and other factors, will give only a poor idea of the actual amount of irradiation that arrives to exert its biologic influence upon the neoplasm and the tumor bed. One hundred thousand milligram hours is the energy that is emitted at the source of irradiation, which may be at 6, 10, or even 15 cm. from the skin. It is vastly greater than the actual amount of energy that penetrates to the deep-lying neoplasm within the larynx. I have just returned from a clinical tour of the east and spent a great deal of time observing the work in various New York institutes. The most promising results in carcinoma of the larynx were where the Coutard technic was utilized. However, all we can say at present about the Coutard and radium pack method is that they are promising. Until statistics showing a good percentage of five year cures have been repeatedly published and confirmed with consistency, it is far better to depend upon surgery in those operable cases where the probability of a five year cure has been definitely established and universally accepted.

## CARDIAC FUNCTIONAL DIAGNOSIS

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In cardiac diagnosis, after excluding purely functional and neurogenic factors, the most essential thing to know about a heart that is beginning to manifest the effect of excessive strain, is to determine whether the heart has been working beyond the limits of its physiological strength. The prognosis and outline of treatment depends upon the results of this study.

The electrocardiogram, x-ray and stethoscope are well adapted for diagnosis of the lesion present but a heart may pass a good physical examination and yet may not be efficiently performing its function. Efforts to determine the functional capacity of the heart, however, are not entirely satisfactory, partly due to the lack of facilities to measure vascular tonus or to estimate the psychic response of the heart. It is possible to obtain a fair estimate in a crude fashion by the tests to be outlined here. The body at rest affords no opportunity for estimating the reserve force, however. Neurocardial lesions must be differentiated from myocardial and Lieb<sup>1</sup> suggests the following tests:

1. Trigeminal irritation by ammonia. A normal heart will remain steady but there is an acceleration in a neurotic heart.

2. Aschner's oculocardiac reflex elicited by pressure on one or both eyeballs changes the heart rhythm. The normal shows a retardation of four to ten beats. More than ten suggests cardiac functional disturbance. neurocardial disease.

3. Atropine differentiates disturbance through the vagus nerves from muscular degeneration according to Talley, who found that an injection of 1-25 to 1-50 grain atropine increased the normal heart 30 to 40 beats but the myocardial heart is increased only 20 or less.

The literature has had many contributions on the subject of tests for cardiac function and in 1922, after a careful study of the tests then in use, Brittingham and White<sup>2</sup> concluded that there was no satisfactory test. Frost in the same year made the same statement but suggested a new cardiorespiratory test developed by Dwight

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and Frost but no paper was published on the new test at that time. Later it was described<sup>3</sup> and discussed by Herman.<sup>4</sup>

From 1924 to 1931 Eustis<sup>5</sup> published a number of articles on the test and in 1927 he<sup>6</sup> suggested a simplification of Frost's original technique. In 1931 he gave a resume of five years use of the test. Schmitz in 1925<sup>7</sup> evaluated the various heart function tests and made the significant statement that most investigators have made the error of employing the various tests as heart tests rather than as tests of the patient with heart disease. The importance of this differentiation must be emphasized. The functional capacity of the heart, responding to a given load, plus the secondary response of the general circulation and nervous system is the only method of measurement clinically useful. No single test alone is, or need be, made the criterion for an absolute functional diagnosis or prognosis.

Most of the heart functional tests are based upon changes in the circulation caused by increased muscular exertion which produces a derangement of certain qualities of the heart in which function is disturbed more readily in the damaged heart than in the normal. The physical signs and clinical symptoms indicate this change in function but not the exact level of cardiac functional efficiency.

The studies to determine this efficiency can be grouped as follows:

1. Clinical, comprising increased irregularities under exercise, variations in pulse rate, changes in the quality of the pulse, changes in heart tones and valvular tones, secondary signs of deficient function in other organs such as dyspnea, edema, ascites, hydrothorax and angina pectoris.

2. Sphygmomanometry. Arterial pressure is the basis of most forms of clinical study of cardiac reactions and various instruments have been devised to measure and record this, most of them of the Riva-Rocci<sup>8</sup> type or modifications and means of recording have been added in the form of sphygmotonographs and sphymographs. These readings have been put in the form of a Factor by Tigerstedt<sup>9</sup> as follows:

Pulse Pressure  $\times$  Pulse-rate = Velocity of circulation. Syst. Pressure  $\times$  Pulse-rate = Work done by the circulation. P.P. divided by S.P. = efficiency of the heart as a pump. This is called the blood pressure co-

efficient by Strassburger. Normal is 25% to 35%. A factor below 20% or over 40% indicates lowered cardiac efficiency. Stone determines the cardiac load and overload factor by dividing the Pulse pressure by the Diastolic pressure, normal being approximately 50%. A very technical modification has been recorded as Tornaï's<sup>10</sup> test and depends on the phases in the arterial tones produced by compression of the artery by a cuff. Goodman and Howell<sup>11</sup> also have described this phenomena.

#### VARIATIONS IN THE PULSE RATE

- a. Posture. In 1833 Donnell counted the pulse rate recumbent and erect and found in the former posture that the pulse rate was slower. Schapiro found that if the myocardium was weak this normal difference disappears or is modified. Geigel<sup>12</sup> found a variation above 30 indicated weakness. The psychic factor must not be overlooked in this test.

- b. Exercise. Mendelsohn<sup>13</sup> and Graupner estimated the time necessary for a normal heart to return to its previous rate after a measured amount of work and a measure of the heart's functional capacity would be shown by the lengthening of this time. The greater the amount of work done with return in 2-3 minutes to the normal, the greater is the heart capacity. Selig<sup>14</sup> used stair climbing as a modification of the Mendelsohn test and further modifications are the hopping test prescribed by the Aeronautics Branch of the U. S. Department of Commerce, the knee or trunk bending or the running step of Lian. Hertz's<sup>15</sup> test consisting of alternately flexing and extending one forearm and at the same time resisting his own movements will slow the pulse in muscular heart affection. In a recent volume on heart disease, Paul Dudley White often refers to the fact that the heart does more work in a recumbent position than when erect. In a fairly recent article, Grollman (The Effect of Variation in Posture on the Output of the Human Heart, *Am. J. Physiol* 86: 285, 1928), after reviewing the literature on the subject, gives a summary on the basis of his own investigations in which he says: "The circulatory minute volumes of a series of normal men and women were determined in the recumbent, sitting and erect postures. Contrary to the findings of previous investigators, the results show that the circulatory minute volume is maintained constant despite variations in posture." The effect of posture on the respiratory mechanism is pointed out, and it is shown that



homogeneous mixture in a lung bag system is less easily obtained in the recumbent than in the standing posture. Certain physiological implications involved in the conception of a constancy in the circulatory minute volume with varying posture is discussed. In previous and succeeding issues of the *American Journal of Physiology* the same author discusses various aspects of cardiac output in different physiological states, e. g.; after fluid intake and during menstruation. From this brief description it will be seen that this type of test can be subject of countless modifications in technique. Sobolowski found Katzenstein's method reliable for determining the ability of the heart to stand general anesthesia. The patient has to lie down, and the physician compresses with the three middle fingers of each hand the femoral arteries directly at the inguinal ligament. The pulse is counted before and after complete compression for two minutes without releasing the pressure. If the second count is equal to or lower than the first, the heart energy is good. Increase up to six beats per minute indicates a weakened heart, but still capable of compensation. General anesthesia is contraindicated if the difference is eight beats or more. Determination of the blood pressure before and during the compression—originally required in Katzenstein—is not essential.

#### 4. Variations in Blood Pressure.

(a) Posture. Changes in posture produce changes in auscultatory blood pressure readings, in systolic, diastolic and pulse pressure. Normally the systolic pressure increases from recumbent to standing but in damaged hearts it remains the same or is decreased. The diastolic rises from sitting to standing normally but falls if there is deficient tone, while the pulse pressure falls on change from sitting to standing.

(b) Exercise. The tests are virtually the same as recorded under changes in pulse rate. On exercise, such as the stair climbing test of Selig or Hertz's<sup>16</sup> gymnastic resistance test, the normal change in blood pressure should be not more than 10-15 mm, but in damaged hearts may reach 20-30 mm. Katzenstein's<sup>17</sup> test of compressing digitally or by an Esmarch bandage for 2 or 2½ minutes both iliac arteries, recording the blood pressure and pulse rate. Normally the blood pressure rises and pulse rate drops. In adequate hypertrophied hearts the blood pressure

rises 15-40 mm and pulse rate remains the same or falls. In early damage the blood pressure remains unchanged while the pulse rate increases. In cardiac failure the blood pressure falls but the pulse rate increases considerably.

(c) Barringer's<sup>18</sup> Test depending on the increased CO<sub>2</sub> content of the blood on exercise or work stimulating the nerve centers controlling the suprarenals with resulting constriction of the splanchnic vessels causes a rise in blood pressure. On rest this process is reversed and the blood pressure falls again in a normal heart. However, in a damaged heart the mechanism is changed so that the lowered aortic pressure causes an expulsion of the residual blood in the heart and the pressure rises again briefly, and this delayed rise in blood pressure after cessation of muscular work is the significant point in Barringer's test. If the systolic blood pressure reaches its greatest height not immediately after work but ½ to 3 min. later it shows lowered efficiency.

5. Russian or Breath Holding Tests. Normal individuals can hold the breath in inspiration from 40 to 70 seconds and in expiration 20 to 35 seconds. In lesions of the heart this ration 40-70

20-35, is preserved though the periods are shortened, and this will serve to differentiate bronchial asthma where the ratio is reversed. Voluntary apnea will have a definite time in a normal heart but a cardiac insufficiency shortens the time, according to Cooper.<sup>19</sup>

6. Vital capacity. It has long been known that the volume of the greatest possible expiration after the deepest inspiration is decreased below normal in patients with cardiac lesions. A quantitative test of the pulmonary engorgement and indirectly of the functional condition and reserve power of the heart can be inferred from vital capacity readings. Peabody and Wentworth<sup>20</sup> called attention to the relationship between the vital capacity and the clinical condition of cardiac compensation, and a table of vital capacity readings has been prepared for sex and height. A reading of 90% of this standard can be considered normal, while readings of 70 to 90% indicate partial incapacity and call for a modified regime. From 40 to 70% means more limitation of activity and below 40% the patients are decompensated to the point where bed rest is imperative. A general rule is that a reduced

vital capacity makes a cardiac dysfunction a possibility.

7. Mackenzie, Wells, Dewis and Ylvisaker<sup>21</sup> recently devised in the Medical Department of the Prudential Life Ins. Co. a combination test called the flarimeter test, being an ingenious combination of the step test, cardiorespiratory test, and breath holding test after exercise. The best criticism of the test is that it is too complicated for general clinical use.

8. Cardiorespiratory test. This test was developed by Eustis.<sup>22</sup> The systolic and diastolic pressure is taken auscultatory with the patient seated, the pulse rate being counted at the same time by auscultation over the brachial artery. The pressure is then released and the patient told to take a full inspiration and then expire through a spirometer, keeping the pressure uniform at 20 mm of mercury. The systolic pressure is taken before the patient inhales, and after completion of the exhalations. Without releasing the pressure in the cuff the needle of the spirometer is turned to zero, the systolic pressure again taken. A normal response results in an increase in systolic pressure after the third expiration of from 30 to 40 mm. A failure to respond denotes a weakened heart muscle. A fall in the inspiration systolic pressure means a great dilation of the heart. This test has shown correspondences to the clinical evidence of the functional capacity of the heart.

9. Mental Concentration. Erb's test consists in placing the subject perfectly at ease. A mental concentration on the pulse in a normal individual causes practically no change, but in a cardiac case there may be found a moderate or marked slowing of the pulse.

#### Conclusions:

1. No fixed method should be adopted in estimating the heart's function but the tests should be fitted to the individual case.

2. The only practical standard of measurement to determine is to what extent the heart's response to effort is curtailed.

3. Tests should be repeated and results averaged.

4. The personal factor must not be overlooked in interpreting results. The heart is the individual's own organ and must suit his needs, not some instrument's.

5. Estimation of functional efficiency of the

heart tries to determine only how much physical exertion the patient is capable of performing, whether he is able to stand the strain and stress of his occupation and respond to the stimulus of his environment. Wallenberg states<sup>23</sup> that the more trivial the cause leading to decompensation the more advanced the cardiac disease. A constant relation between cause and effect does not exist but several factors have to coincide. In patients who have experienced several decompensations a slight increase in their work or other obligation suffices.

6. Common sense is needed in interpretation of any test, as the cardiac strength varies with the time of day, before or after food, before or after rest, and the presence of habits or mental worries all have an important bearing.

7. The best functional test we have at present is the patient himself and a thorough study of the history, symptoms, physical examination and laboratory tests will be of more aid in estimating the functional capacity of the heart than all the tests combined.

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#### DISCUSSION

Dr. Don C. Sutton (Chicago): I am reminded of a clinic I attended of Dr. Preble's as a senior medical student. He presented a man with a very extensive aortic insufficiency who offered this story: that for a number of years his regular daily labor had been that of swinging a twelve pound sledge; he was shifted to a six pound sledge, and he could still do a full day's work, but that he found himself completely unable to walk up one flight of stairs.

That seems to me to be the secret of functional tests. That is, most of the tests that have been devised for the study of cardiac functions are artificial, and after



all, the individual can continue in moderation doing the things he has been used to doing, and give much better evidence of his cardiac efficiency than by some artificial test.

In our cardiac follow up clinic at the county hospital where admissions now have reached beyond 9,000, we have had many interesting experiences, because these individuals are that border line group that have to labor daily in order to have their daily bread. Therefore, the first question they ask is, "Can I go to work? Can I do my job?"

The consequence is, we have had some surprises in what men can do. I would like to give just two illustrations. One, a man of thirty-five, entered the hospital with a rheumatic heart disease, fibrillation, and a very marked decompensation. After leaving the hospital moderately well compensated he came to the clinic for a few times and announced he was returning to his job, which was that of an iron molder, and he and a partner had to lift several times during the night a 300 pound molding, several feet high.

He continued on that job for three years, although he had an enormously enlarged heart, a well developed mitral disease and fibrillated during the entire time.

Another man of forty-five, with a similar lesion got a job in a store room where it was necessary for him to lift from a traveling belt a sixty pound firkin of butter to a truck. This was a continuous job lasting for eight hours, and he continued on that job for something like three years before he decompensated.

So that the mere examination of the patient gives us very little information as to what that patient can do.

Do not misunderstand that I advise patients to go to the extent that these two did that I have illustrated, but, after all, it seems to me the most important idea of a functional capacity of a heart is what that heart does for that particular individual.

And if his heart does the work he expects of it without fatigue, without dyspnea, and without edema, he has a satisfactory function. That if any of those are present, then his function is not sufficient for what he is expecting of it.

I want in conclusion to congratulate Dr. Meixner on his idea also that after all the best functional test of the heart is what it does for that patient.

Dr. Meixner: There are just two other minor points. In the first place, the relation of cardiac function to annual health examinations.

Annual health examinations are getting to be more and more relied upon and the patient comes to you and says, "How about my heart? Is it good? Will it last? How long will it last?" The annual health examination offers a wonderful opportunity to study cardiacs and particularly the response of that particular patient to the work he has to do, and if there are no other reasons for annual health examinations the observation of the heart after the age of forty would be plenty of justification.

And the second, cardiac function is the important thing in the patient's mind when he consults you, rather than physical findings or laboratory facts.

## FETAL PERITONITIS IN A PREMATURE INFANT: OPERATION AND RECOVERY

GEORGE L. DAVENPORT, M. D., AND SAMUEL L. GOLDBERG, M. D., M. S., (IN SURG.)

CHICAGO

Fetal peritonitis is an uncommon condition. In a complete review of the literature, Abt<sup>1</sup> found 85 reported cases. The large majority of these were found at necropsy. In some few instances diagnosis was made early and surgical intervention undertaken, but only one patient was known to survive (Peiser, 1918).<sup>2</sup> A search of the subsequent literature has failed to reveal another. For this reason we deemed it advisable to record our case. The patient is alive following surgery done to correct intestinal obstruction by bands of adhesions caused by a fetal peritonitis.

Baby William P. was admitted to the service of Dr. A. Levinson at the Premature Station of Sarah Morris Hospital at 3 A. M. on January 2, 1933. It had been born two hours previously, the third child of a colored woman of 21, following an uneventful 7½ month pregnancy and a cephalic precipitate delivery. Its condition on admission was "fair"; it was cold, the temperature did not register on a thermometer, its cry was weak and its color pale. It weighed 2335 grams, and physical examination was essentially negative. Except for a trace of albuminuria, routine laboratory tests showed results within normal limits. Wassermann tests on the blood of mother and child were negative. Incubator heat and careful care improved the infant's condition within a few hours, the temperature rose to normal, it appeared stronger, and took feedings well.

At noon on the first day, the child vomited a small amount of "green mucus". This was repeated several times during that afternoon and evening. Several stools were passed, entirely meconium. Vomiting continued the following day, January 3, the vomitus becoming bile colored, and slight abdominal distension was first noticed. A small enema gave no results or relief. The condition became more marked the following day, the stools continued to be entirely meconium. To combat dehydration 50 c.c. of 5% glucose in physiologic saline solution was given subcutaneously. That afternoon a thin barium suspension was given by mouth to con-

From the Surgical Services of Michael Reese Hospital, Chicago.

firm and localize the intestinal obstruction that the clinical picture led us to believe was present.

The x-ray report (Dr. R. A. Arens) read, "Films taken immediately after barium meal and 2 and 18 hours later show dilatation of the small intestine, with partial obstruction, so that at 18 hours there is still a considerable part of the barium meal in the small intestine and some in the stomach. The impression is that of partial obstruction, due either to atresia or bands, in the jejunum, about 10 to 15 centimeters distal to the ligament of Treitz." (Fig. 1).

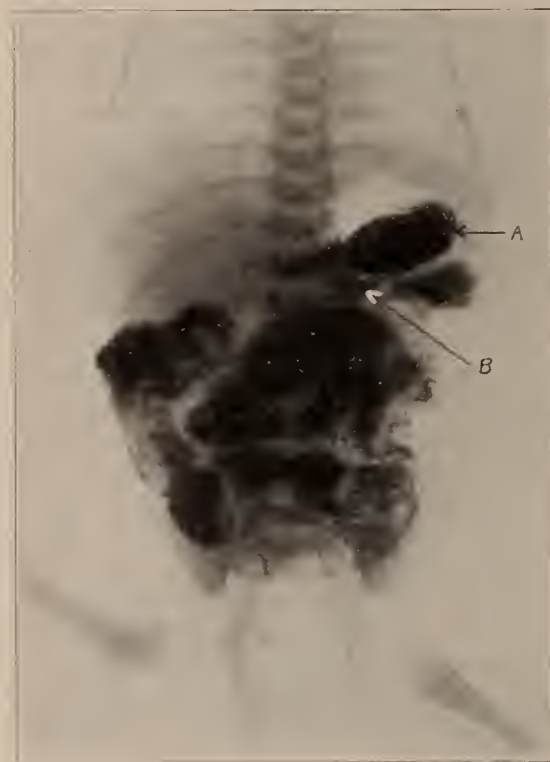


Fig. 1. Roentgenogram 18 hours after ingestion of barium meal showing (A) gastric retention and (B) obstruction probably in jejunum.

We saw the child in consultation. The abdomen was distended markedly; peristaltic waves were visible. Rectal examination was negative. Exploration was agreed upon. Preparation consisted of repeated gastric lavage and subcutaneous injections of 5% glucose in physiologic saline solution to obtain a better fluid balance.

The abdomen was opened, under drop ether anesthesia, through the mid-line, from xyphoid to umbilicus. Coils of distended small bowel immediately presented themselves. The serosal surfaces were everywhere dull and in places covered with shaggy fibrin deposits. Blood vessels

were prominent, and even careful handling caused subserosal hemorrhages. There was a small amount of free, straw-colored fluid, smears of which showed no organisms. The mesenteric lymph nodes were everywhere enlarged, in some areas confluent, but for the most part discrete. Adhesions between loops of bowel were filmy and separated readily except in two areas. Between the jejunum and the parietal peritoneum of the left upper quadrant there was a band about three millimeters wide which was quite difficult to separate. The jejunum at the point of attachment was dark grey and necrotic looking, but no actual perforation could be demonstrated. The area was inverted with several fine silk Lembert sutures. A similar band between the terminal ileum and the parietal peritoneum was also divided. The gall bladder and appendix were visualized and appeared normal. There was no Meckel's diverticulum or any other abnormality of the gastrointestinal tract.

Much of the distension was relieved during the operative procedure. Closure was in layers, using fine plain catgut throughout, without drainage. The suture line was reinforced with 3 black silk tension sutures. In spite of the 45 minutes of anesthesia, the child left the operating room in fairly good condition, its color and pulse were good and its skin warm.

The post-operative course was strangely uneventful. The maximum temperature was 102° rectally, the first day. Regurgitation of small amounts of fluid took place on only 2 occasions immediately after awakening from the anesthetic. Ten c.c. of father's blood and 10 c.c. of 10% glucose solution were given intramuscularly that afternoon and repeated that night. Forty c.c. of physiologic saline solution was given subcutaneously at 8 hour intervals. Eight hours after operation, the infant passed a fair sized stool, and 2 hours later passed a large stool; with practically complete relief of the abdominal distension. Following this breast milk feedings of 4 c.c. were started and gradually increased, supplementing the fluid intake with glucose and saline solutions for 2 days; when sufficient fluids were taken by mouth.

A slight serous, then purulent discharge from the lower angle of the wound which persisted a few days, was the only untoward event in an otherwise uneventful convalescence. Sutures were removed on the 11th day. On the 29th post-



operative day the child was dismissed from the hospital in excellent condition. Its weight was 2440 grams, the minimum had been 2200 grams.

*Comment.* Successful laparotomies on infants are not uncommon, but the success of an operation for intestinal obstruction in a few days old premature infant is worthy of note.

The diagnosis of intestinal obstruction was not difficult. Persistent vomiting, distension, visible peristalsis and obstipation made exploration imperative. X-ray visualization of distended loops of small bowel and 18 hours gastric retention verified this, and the localization of the obstruction by the x-ray was excellent.

Probably the inflammatory element of the fetal peritonitis was in abeyance at the time of surgical interference. Grossly there was no doubt of the existence of peritonitis, though study of the smears revealed no organisms. Probably the infant had developed enough immunity to entirely control the infection. The obstruction of the small bowel by adhesions with the resulting vomiting and toxemia was the most important element. Early diagnosis and pre-operative hydration with saline and glucose solutions to combat toxemia and prepare the child for surgery were important factors in the good result.

Drop ether was well taken. It was used in preference to regional block or infiltration anesthesia because of its slight stimulating effect, and because relaxation was necessary to cope with the anticipated difficulty from distended loops of bowel during exploration and closure.

Post-operative care was an important factor. Much credit must be given to Miss Lundeen and her associates in the pre-mature station of Sarah Morris Hospital for excellent care and co-operation.

Abt believes that fetal peritonitis is not always infectious and that its occurrence depends in a large part upon intestinal perforations which permit the escape of meconium into the peritoneal cavity causing inflammatory reactions and adhesions. No perforation could be demonstrated in this instance, though it may have been present at a previous time and become agglutinated. Possibly this peritonitis was hematogenous in origin, belonging to the smaller group caused by actual infectious agents passing through the placenta.

Congenital gastrointestinal abnormalities were not present. These have been mentioned repeat-

edly in necropsy reports of cases of fetal peritonitis in the literature.

On February 1, 1934, when the child was last seen at the out-patient department, it was in excellent condition; its weight was 18 pounds, 14 ounces. Up to the present time it has had no gastrointestinal trouble whatsoever.

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### FOLLICULIN-CYST OF THE OVARY PRESENTING SYMPTOMS OF PREGNANCY

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CHICAGO

In America and Germany studies have been made of the functional processes in the uterus and ovary, and anatomical findings have elucidated the functional inter-relationships between the two organs. It is by means of its hormones that the ovary exerts its influence over the uterus. Anatomical and clinical knowledge of the processes involved may be deepened by chemical studies on the hormones.

The uterus may respond to the ovarian influence by means of amenorrhea or hemorrhage. The two symptoms seem to be contradictory but both may be induced by the same functional process. An amenorrhea may go over into a hemorrhage. In these hormonal disturbances it may not be merely a question of a paucity or absence of hormone, but of an over-production.

Under the stimulus of the anterior lobe of the hypophysis, the ovary produces folliculin and lutein.

*Folliculin-effect:* Up to the time of puberty the mucosa of the uterus is a thin membrane with only a few glands. This mucosa comes under the hormonal influence of the first follicle which begins to ripen. In the fourteen days required for the ripening of the follicle, the uterine mucosa develops to several times its original thickness (Fig. 1); this is called the stage of proliferation. After the follicle has ruptured and become changed over into the corpus luteum, the proliferative processes in the uterine mucosa cease and its glands begin to secrete; the proliferation phase goes over into the phase of secre-

tory activity. It is thus that the embedding of the developing ovum in the uterine mucosa is rendered possible. If the ovum has not become fertilized, we have to do with a merely sterile functional process; the corpus luteum regresses. The hypertrophied endometrium is capable of living only so long as it remains under hormonal influence, either folliculin or lutein. With regression of the corpus luteum, hormonal influence ceases and the endometrium dies and is thrown off.

When the follicle does not rupture and the production of the folliculin continues, the growth-impulse of the endometrium remains in effect, and the endometrium goes on growing in thickness. The growth-impulse also persists in

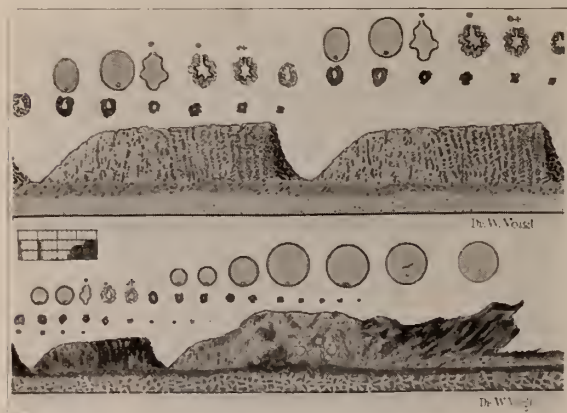


Fig. 1. (Above). The normal menstrual cycle.  
Fig. 2. (Below.) Glandular cystic hypertrophy of the endometrium.

the uterine musculature which goes on developing in thickness, but the intrauterine cavity does not, as in the case of pregnancy, gain in size, since diminished tonus of the musculature as seen in early pregnancies does not occur. The resulting crowding of the intrauterine space leads to pressure on the thickened mucosa (Figs. 2, 3), necrosis and bleeding. Parts of the mucosa are cast off, but these are replaced by the proliferation of the remaining mucosa, stimulated by the continued production of folliculin. Consequently, there will be observed the clinical picture of an amenorrhea of perhaps five weeks to three months' duration, changing to one of irregular periods of bleeding. The amenorrhea may lead to the diagnosis of pregnancy, especially tubal pregnancy. The fact is that the clinical picture of hyper-folliculinism is one of enlarged uterus, livid discoloration of the cervix

and vagina, and eventually an adnexal tumor.

A corpus luteum cyst may produce findings of pregnancy just as well as a folliculin cyst. A case of this kind was described by Halban, and another by Wagner and Pizschek. In order to know what is to be expected in cases of overproduction of lutein, it is essential that the



Fig. 3. Glandular cystic hypertrophy of the endometrium.

function of the corpus luteum be understood. The ripened follicle ruptures, the ovum begins its wanderings in expectation of being fertilized. The ruptured follicle now suffers regressive changes, its residual germinal epithelium—the granulosa cells—developing into a gland of internal secretion, namely, the corpus luteum. The corpus luteum remains active for a certain time. During this period the ovum either dies or is fertilized and develops to the point where it is capable of further independent growth. The effect of the hormone of the corpus luteum is to change the phase of proliferation into that of secretion. This phase is characterized by the development of dilated, sinuous, tubular glands, in the cells of which mitoses are absent. The corpus luteum hormone itself exerts no influence on the growth of the uterus; its effects are limited to the endometrium. It is only effective when superimposed upon the effects of the fol-



hculin. Lutein permits the pregnancy to continue, in that it nullifies the effect of the pituitrin and thus saves the uterine contents from being subjected to the uterine contraction-producing effects of the pituitary gland. It also prevents further ovulation. When the corpus luteum is extirpated, the secretion of milk ceases.

When fertilization of the ovum does not occur and the corpus luteum is retained and undergoes further development, the mucosa is not thrown off as in the menstrual period since it is still under the influence of the hormone; the menses do not occur and the mucosa continues in the secretion phase. There is amenorrhea, but in these cases bleeding does not develop. In-

curs only with the act of mating. In the female rabbit, the hypophysis has been removed one hour after she has been covered by the male, and yet the amount of anterior lobe hormone already given has been sufficient to effectuate ovulation and luteinization.

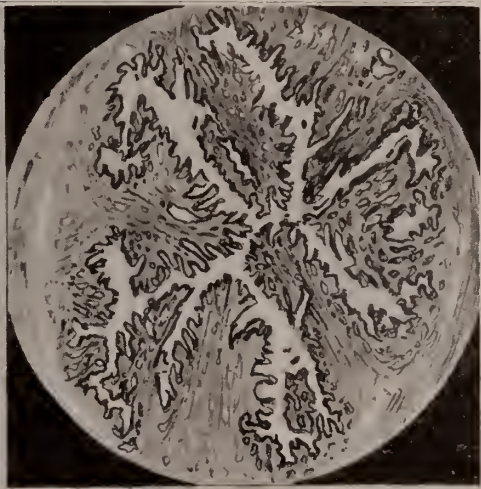
In the folliculin cysts, the production of folliculin continues until internal pressure in the cyst becomes so great that the granulosa atrophies. The changes in the endometrium go hand in hand with the folliculin production.

#### DISCUSSION

*Case 1.* The case here reported from St. Joseph's Hospital is that of a woman, twenty-six years old, who gave birth to a child in mid-November, 1933. The



Dr. W. Voigt



Dr. W. Voigt

Fig. 4. (Left.) Endometrium of a rabbit treated with folliculin, showing stage of proliferation.

Fig. 5. (Right.) Endometrium of a rabbit treated with lutein.

dubitable cases of this character have been observed. However, even in these cases menorrhagia or metrorrhagia is frequently observed. This is explained as follows: Corpus luteum cysts as a rule do not contain pure lutein; there is present in addition folliculin in varying amounts. Where the lutein predominates there is amenorrhea; where the folliculin predominates there is bleeding.

What causes the development of ovarian cysts? As a rule, they result from a functional failure of the anterior lobe of the hypophysis which does not, in these cases, produce sufficient hormone to effectuate ovulation. At least, we know from studies on the rabbit that enormous amounts of anterior hypophyseal lobe hormone are produced preceding ovulation. In rabbits, ovulation oc-

course of the labor itself was normal, but with the expulsion of the placenta there was considerable bleeding despite a satisfactorily contracted uterus. The bleeding was controlled with difficulty. This incident was remarkable in itself and may have had some significance in the later development of the case since the cyst which was later removed at operation, contained folliculin which tends to inhibit blood-coagulation. Perhaps the tumor was already present in its incipency. No tear of the cervix or other birth injury was present. The bleeding came from the cavity of the uterus; apparently coagulation was not entirely normal. Early in January, 1934, seven weeks after delivery, the patient consulted the writer with typical symptoms of appendicitis. The diagnosis was certain and was substantiated by the subsequent operation, but due to the recent accouchement and the not overly severe attack, a twenty-four hour expectant period was decided upon. After this period, the symptoms had somewhat abated, so operation was deferred. The patient reported a men-

struation during mid-January. In mid-February she returned, stating that she had had no further bleeding since the middle of January and believed that she was pregnant.

The findings at this time were as follows: Breasts somewhat enlarged and firm; there was no colostrum. There was no pain on pressure over the right lower quadrant. The vulva, introitus vaginae and cervix were livid. The uterus was soft, the size of a gravidity of approximately three months. Hegar sign was positive. In the region of the right ovary a tensely elastic, fluctuating tumor was felt.

The diagnosis was "folliculin cyst of the ovary," not

would tend to maintain the leucocytosis. The bleeding in mid-January was considered to be not a true menstrual period but a hemorrhage such as occurs characteristically in the mucosal hyperplasias resulting from a persisting follicle. Further bleeding did not occur because the endometrium which had become necrotic and cast off with resultant bleeding, was not yet replaced. Tubal pregnancy was excluded because the pelvic mass was too hard and elastic. This exclusion was further supported by the negative results of the Aschheim-Zondek test.

The patient finally consented to an operation, which was performed at St. Joseph's Hospital on February

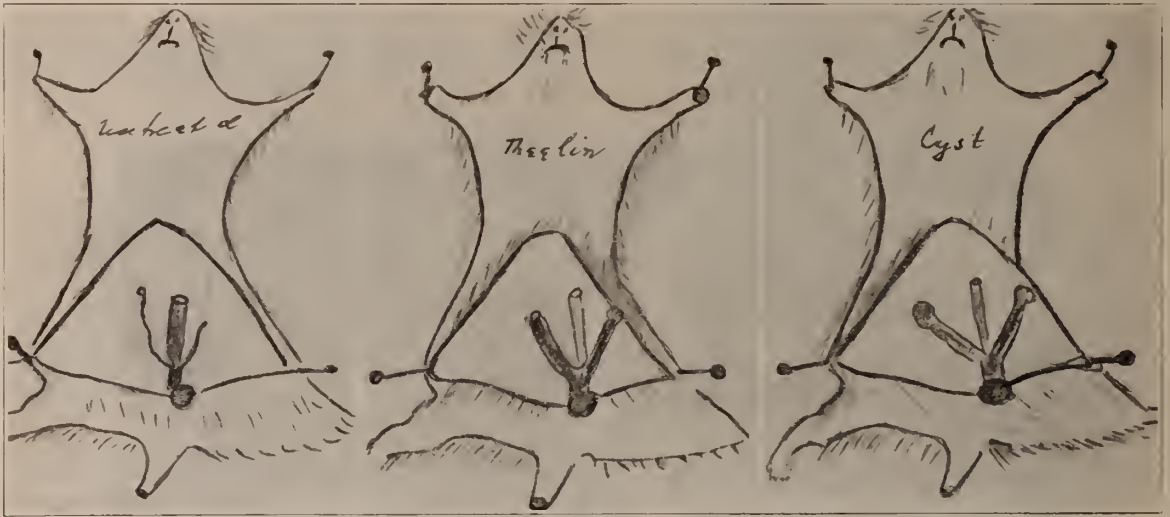


Fig. 6. (Left.) Untreated juvenile mouse used as control.

Fig. 7. (Center.) Juvenile mouse injected with theelin.

Fig. 8. (Right.) Juvenile mouse injected with contents of the cyst.

pregnancy. The patient was told that this probably was the reason for the obstinate bleeding at the time of delivery. This diagnosis seemed so absurd to the patient that she consulted a number of other physicians. The diagnoses are interesting: Firstly, pregnancy; secondly, tubal pregnancy, and thirdly, pregnancy with concurrent omental-appendiceal abscess. The last diagnosis was apparently supported by the leucocyte count of 13,000.

The diagnosis of folliculin cyst was based on the following considerations: While, of course, it could not be ruled out, pregnancy is not very likely to occur in a woman after child-birth, who up to four weeks previously had been suckling her child. It would be easier to believe that the condition was induced by the mass in the pelvis, which consequently would not be a simple serous cyst but one containing folliculin. The diagnosis of omental abscess was rejected because of the palpatory findings on the tumor mass itself, which had an elastic, tense, fluctuant feel, and because of its evident connection with the adnexa. It was believed that the recent attack of acute appendicitis would satisfactorily explain the leucocyte count of 13,000. In addition, there was present a chronic irritative condition which

20. The findings substantiated the pre-operative assumption of the presence of a cystic tumor and of a subacute appendicitis. The walls of the appendix were thickened, the mesenterium obliterated, the appendix adherent to the cecum in a solid mass. The cyst was larger than a hen's egg. The ovary with the cyst and the appendix were removed. The patient made an uneventful recovery, the symptoms of pregnancy promptly disappearing.

Injection of the contents of the cyst into young mice produced enlargement of the uterus in a manner characteristic of folliculin. The photograph (Fig. 6) shows a normal juvenile mouse used as a control. The horns of its uterus are delicate thread-like structures. Figures 7, 8, show a mouse from the same litter into which theelin injections were made and also the one into which the cyst content was injected. The manifestations produced by the injection of the cyst content were similar to those produced by injections of commercial folliculin (theelin). Prolan (ovarian blood points) was also present. The prolان probably arose from the placenta and was stored in the cyst. Lutein could not be demonstrated.



## DISCUSSION

Perhaps a brief discussion of the hormone content of the cysts and solid tumors of the ovary would not be out of place here. Investigators in the Berlin Clinic found that in the tumors of the ovary complicated by pregnancy, the tumor always contained prolactin B and ovarian hormone. The Aschheim-Zondek pregnancy test on the urine of these women was always positive. In our case the test was negative. The hormone content of these tumors is not produced by the tumor itself, that is, it is a secondary event; the placenta, the great producer of hormone, saturates the surrounding structures with its secretory products. Thus, these products reach the tumor and the peritoneum secondarily.

How long this hormone will remain stored in the tissues of the tumor after the pregnancy has terminated is uncertain; apparently, however, it is discharged from the tumor tissues but slowly, so that frequently a positive pregnancy-test may be maintained from the hormone-reservoir in the tumor tissues for a long time.

The discussion began with the assertion that overproduction of the sex-hormone will lead to reaction on the part of the uterus, resulting in amenorrhea or hemorrhage or even in the symptoms of pregnancy. Thus, a persistent follicle may maintain bleeding for weeks, rebellious to all treatment. This hemorrhage ceases with the removal of the cyst. The rupturing of the cyst under light anesthesia, as recommended by others, seems to the writer too daring because of the peritoneal shock which may result. There is certainly much to be studied on this subject.

In cases of gynecological bleeding the greatest precision and exactitude in diagnosis is demanded. It is now necessary to view the climacterium in a different light. Under the term climacterium is included the development of irregularities in the menstrual periods, vasomotor and nerve disturbances, and changes in the genitalia. Therapeutic results are not always clear; frequently ovarian hormone is successful, again, frequently not. This is due apparently to the different stages of the climacterium, which in their varying symptom-complexes are not sufficiently considered. We are able to distinguish three stages of the climacterium: firstly, overproduction of folliculin with enlargement of the uterus and amenorrhea or hemorrhage, but without nervous symptoms. Secondly, cessation of folliculin production. The uterus becomes smaller and harder and vasomotor and nervous manifestations appear. Thirdly, the ovary no longer functions, vasomotor symptoms disappear, and the uterus becomes small. At this time prolactin appears in the urine since the ovary no longer exerts an inhibitory influence on the hypophysis. 6633 Sheridan Road.

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## CYST OF THE EPIGLOTTIS AND OTHER LARYNGEAL CYSTS

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JOLIET, ILL.

Cysts of the epiglottis are the most numerous of the laryngeal cysts. Chamberlain<sup>1</sup> quotes Moure who collected 117 cases, 50 of which were epiglottic. Almost any portion of the larynx may be attacked. Moure's study shows the true cords to be the next most frequent site. The ventricles, ventricular bands and aryepiglottic folds are also comparatively often the site of cystic growths.

An idea as to the frequency of laryngeal cysts may be obtained from Cavenagh<sup>2</sup> who in 1931 cites Leto's recent addition of 47 cases making a total of 208 cases collected out of 3000 laryngeal tumors.

Myerson<sup>3</sup> in 1933 gives a classification of laryngeal cysts 1. Retention cysts, 2. Congenital or embryonal cysts, 3. Lymph or blood cysts, and 4. Traumatic or implantation cysts. Several authorities had previously given classifications usually less complete than Myerson's. Charschak,<sup>4</sup> also in 1933, gives almost the same classification except that he adds dermoid cyst as a separate entity.

The most frequent of these is the retention cyst, usually thought to be due to inflammation of the duct of a mucous gland causing obstruction with retention of glandular secretion and progressive dilation forming a true cyst. This type is found most often on the epiglottis and on the lingual surface where the glands are numerous. It constitutes the great bulk of epiglottic cysts.

The next most numerous of the cysts is the embryonic or congenital cyst which in the past as usually resulted in death in early infancy. To the best of my knowledge very few, probably less than 5 such cases, have been successfully handled in infancy. In fact, one may go farther and say that up to the past 5 or 6 years, perhaps not a single case of congenital cyst has been definitely diagnosed in vivo during infancy. They have been diagnosed as congenital laryngeal stridor, status lymphaticus, atelectasis, some form of laryngeal tumor other than cyst, and various other labels have been attached. It has been only on

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the autopsy table that the correct diagnosis was revealed.

H. Marx<sup>5</sup> of Munster, in 1928, is of the opinion that his case was the first to be correctly diagnosed during life. This patient died from descending infection following tracheotomy.

Bellocq<sup>6</sup> and Pernot present a case in which they made a diagnosis of congenital tumor of the ventricle, perhaps cystic. This case also died 12 days after tracheotomy and autopsy revealed an intralaryngeal cyst.

Chamberlin, in 1917, reports the case of a very young child in which a probable diagnosis of enchondroma was made. Puncture of this tumor resulted in a gush of 1-2 oz. of brownish viscid fluid and a complete cure. It seems possible that this cyst may fall into the class of lymph or blood cysts which we will discuss in a few moments. Dechard's<sup>7</sup> case, in 1920, is similar to Chamberlin's and is also notable for a successful result in a 7 weeks' infant after an opening with curved scissors. The contents appeared to be dark clotted blood. The pre-operative diagnosis was a sac filled with fluid, a cyst, abscess, or tumor. The post-operative diagnosis was extralaryngeal blood cyst; the location was between the larynx internally and the outer wall of the deep oropharynx externally.

The case of Lorie<sup>8</sup> and Lux in 1932 seems a remarkable one in that in a 4½ month's old infant a large cyst was successfully removed by thyrotomy preceded by a low tracheotomy 2 weeks earlier.

Myerson's 3 cases, all congenital, are very interesting and valuable to study. His first case was seen at 2 days of age and the cyst incised under direct laryngoscopy giving egress to a quantity of thick glairy mucus. The inspiratory stridor returned after 48 hours and the infant died of bronchopneumonia at the age of 24 days. The other 2 cases were each 3 years of age. One recovered after removal of a cyst by thyrotomy and the other died after apparently making a good recovery. Death was due to a granuloma forming some days after thyrotomy.

Chamberlin and Dechard's cases seem to belong to the class of lymph or blood cysts though they may also be congenital. Several points favor this view. Both cases were cured by simple incision. The contents in Dechard's case appeared to be dark clotted blood, in fact, he diagnosed

the case post-operatively as a blood cyst. Chamberlin's was very flat as well might be the case in a collection of lymph or blood in a dilated connective tissue space without an epithelial lining; and after puncture not a sign of a cyst remained.

A retention cyst is lined internally by stratified columnar or stratified squamous epithelium with a subepithelial layer of connective tissue often rich in blood vessels. Externally we have an epithelial covering often identical with the internal epithelium. Congenital cysts often have the same histological characteristics as retention cysts in which case it is impossible to differentiate them microscopically. In some congenital cysts there is an intermixture of structures derived from endoderm and mesoderm in which case it is possible to make a microscopic differentiation between the two types.

Traumatic cysts have been reported by very few men: Glas,<sup>9</sup> and Dean<sup>10</sup> and Gregg were the only ones I could find.

Dean and Gregg give some interesting data about this type. They are due to accidental intrusion of epithelial cells into submucous or subcutaneous tissues thus making an "Acquired or Traumatic Dermoid." They are found in the skin, iris, cornea, anterior chamber, and in the anterior thoracic wall coming from the pleura.

A description of their case follows: The patient had laryngeal tuberculosis. The treatment consisted of 50% lactic acid applications and later suspension and curettage every 2 weeks. The larynx was apparently healed in 4 months and the patient discharged. She appeared for routine examination 6 months later showing a dome shaped elevation in the interarytenoid space. This was successfully removed and on section showed an outer covering of squamous epithelium nearly normal, slightly thickened in places. Below this was a small cystic process in connective tissue with a lining of squamous epithelium similar to the surface. The recovery was complete. Dean and Gregg draw the conclusion that in the case of tumors following operations on the larynx implantation cyst is to be considered.

Probably the first case of laryngeal cyst reported in this part of the country was that of W. E. Casselberry,<sup>11</sup> in 1891, in which he attained success after several operations including tracheotomy.

Dr. Joseph Beck, in 1909, reported a very interesting and difficult epiglottic cyst in a child 5 years old probably congenital as there was history of trouble since birth.

The child was brought to the hospital almost



asphyxiated and a stabbing tracheotomy had to be done immediately. The tumor was first thought to be a papilloma or myxoma. Six weeks later, after exposure with a Jackson speculum a cyst was opened with fixation forceps in attempting to snare it off. As much of the wall as possible was removed and the cautery was then used. It recurred after six months when it was successfully removed by pharyngotomy. It appeared to originate from the left epilaryngeal region close to the tongue. Dr. Beck thought it might be a congenital cyst of thyroglossal origin.

Time will not permit an account of many of the interesting cases such as Freudenthal's<sup>13</sup> four, all in tubercular patients, Imperatori's<sup>14</sup> case diagnosed as branchiogenetic cyst successfully removed by thyrotomy, Cavenagh's cyst of the vocal cord simulating carcinoma, and many others.

In addition to the authors mentioned here valuable articles have been written by Mayoux,<sup>15</sup> Adams,<sup>16</sup> Rosenberger,<sup>17</sup> Gibb,<sup>18</sup> G. H. McKenzie,<sup>19</sup> Park and Isreal,<sup>20</sup> Davis,<sup>21</sup> New,<sup>22</sup> and others some of whom will be referred to later in this paper. A considerable number of the listed articles on this subject I was unable to locate.

Retention cysts, as already stated, are the most numerous of all laryngeal cysts and usually occur on the lingual surface of the epiglottis. They occur more commonly in the adult than in children. Chevalier Jackson<sup>24</sup> had seen 35 cases of laryngeal cyst up to 1930 of which 23 sprang from the epiglottis. He advocates entire removal of the sac by direct laryngoscopy whether the growth be large or small.

Taylor's<sup>23</sup> case of epiglottic cyst is interesting as regards symptomatology and especially because the alarming symptoms continued after the cyst was removed. The cyst, 1½ cm. in diameter, was on the lingual surface and right lateral border of the epiglottis crowding the latter posteriorly and to the left.

The symptoms were severe nocturnal choking spells, the patient waking out of a sound sleep with the sensation that he was being strangled. The symptoms continued after total removal of the cyst and proved to be due to the flabby atrophic condition of the epiglottis resulting from the prolonged pressure of the cyst. This allowed it to fall back and produce almost complete obstruction to inspiration. This symptom was en-

tirely relieved by amputation of the upper half of the epiglottis.

In my patient the location of the cyst was very similar to that of Taylor's case. To be more exact it was on the lingual surface of the epiglottis extending along the right lateral border being secured by a rather extensive pedicle extending down into the right pharyngoepiglottic fold. Its shape was ovoid, three fourths of an inch long and ½ inch wide at its greatest diameter. It was pale yellow in color with a rather thin almost translucent wall in which several branching blood vessels could be seen. The cyst was found on routine mirror examination and could afterward be readily seen on direct examination with a tongue depressor. It was quite freely movable on its pedicle which was rather extensive from side to side but quite narrow antero posteriorly.

The patient's only complaint was a feeling of something in his throat when swallowing saliva. It did not interfere with his taking food or drink.

The patient volunteered the information that several members of his family had been troubled with cysts.

The problem of removal did not seem unduly difficult though it was recognized that there might be pitfalls if the procedure was approached without sufficient preparation. The examination indicated that the patient would behave well and had a very tolerant throat. In my opinion the best procedure was to remove the cyst in toto by dividing its pedicle thus separating it from the epiglottis. This would leave a narrow raw surface which would heal rather quickly.

The question of instruments came up next. Neither the Jackson nor any of the Haslinger instruments appealed to me because of the small working space they permitted. I thought of suspension or merely using an old fashioned Pyncheon tongue depressor. I spoke of this to Dr. John Cavanaugh<sup>25</sup> who advised me to use the old type tongue depressor with the long handle.

The patient was given a preliminary hypodermic of morphine and atropine and the pharynx and larynx thoroughly anesthetized with cocaine and adrenalin. While still in the sitting position a linen traction or guide suture was placed in the epiglottis. It had been my intention then to finish the procedure on the operating table, but with the efficient Pyncheon tongue de-

pressor and the traction suture the exposure was so good, I determined to go ahead in the sitting position. An edge of the pedicle was grasped with a 10-inch tissue forceps and an incision made with the Boettcher tonsil scissors through this edge of the pedicle thus beginning to dissect the cyst and part of its pedicle from the epiglottis. The dissection was thus continued, the severance being completed by cutting through the pedicle where it was attached to the right pharyngo-epiglottic fold.

The pathological report submitted by Dr. W. Henry Wilson was as follows: A small cyst: flat spheroid, about  $\frac{1}{2}$  inch, reddish yellow, contents soft butter-like material, of a reddish brown color, odor of feces. Contains a number of small fatty globules. One crystal of cholesterol seen; negative to Sudan III and negative to tests for cholesterol. No formed substance of any sort. Wall made up of 3 layers; outer squamous, middle of mature connective tissue, and a lining of squamous epithelium.

The following conclusions are drawn:

Congenital cysts have been responsible for some deaths from asphyxia in early infancy. In the past they were seldom diagnosed in life.

The laryngologist when confronted with an infant with embarrassed respiration, particularly with inspiratory stridor, should think of congenital cyst of the larynx.

Congenital cyst in early infancy demands all the skill and resourcefulness of an experienced laryngologist to secure a successful outcome and may prove fatal even with the very best management.

Lymph or blood cysts will sometimes yield to simple puncture.

Retention cysts where possible should be removed intact. If this is not possible endoscopically it may have to be done by external operation.

Implantation cysts are excessively rare; only two are reported in the literature.

The usual epiglottic cyst may often be removed in toto by endoscopy.

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#### DISCUSSION

Dr. H. L. Ford, Champaign: The subject of epiglottic cysts is certainly not a familiar one to most of us, and I am frank to confess that until Myerson's recent report in the September, 1933, issue of the *Archives of Otolaryngology*, I do not recall ever having read or heard anything about their occurrence per se. Now I suppose I shall look for the rest of my life for one of these rather rare things, at the same time hoping that the patient will be an obliging adult and develop an epiglottic variety with a long pedicle, rather than fall heir to a congenital intra-laryngeal cyst in an infant, necessitating tracheotomy, thyreotomy and fissure, with the postmortem showing a secondary implantation granulomatous mass in the trachea, as was Myerson's good fortune in one of his three congenital cases.

However, cysts do occur more frequently than textbooks and current literature would indicate. From the records, however, as Dr. Woodruff has cited, most are of the type known as retention cysts due to closure of the glandular duct, although embryonal or congenital cysts containing both endodermal and mesodermal structures, as well as blood, traumatic or implantation cysts may occur. The embryonal cyst is probably caused by a pinching off of the appendix of the ventricle. The differentiation between an embryonal and retention cyst may hinge only on the presence or absence of mesodermal tissue, as the form, size, epithelium lining, or location are not significant of either type. The cysts occur at all ages, usually sessile, varying in size from a pin head to a large hen's egg, the smaller ones generally on the vocal cords and the larger ones attached



to the epiglottis. They may grow so rapidly as to produce an acute condition, or simulate a foreign body. Symptoms will depend mainly upon the size and location of the cyst. Mason, reporting two cases, says: "The patient is nearly always a nervous old person, who has already diagnosed the case as cancer in the worst form, and the extremely movable growth flapping around in one's larynx with every respiratory effort or act of deglutition does not tend to allay nervousness or make our already difficult examination easier."

The foreign body sensation, with the patient pointing to the tonsillar region, and a desire to clear the throat frequently, seem to be fairly constant. The presence or absence and amount of dyspnea will naturally depend upon the extent of blockage to the airway. One might visualize with little imagination a very serious complication should a cyst with a long pedicle become caught between the vocal cords on deep inspiration. The readiness with which a diagnosis is made should depend mainly upon the amount of difficulty experienced in obtaining a satisfactory study of the larynx. Direct or indirect examination will depend upon the age and the temperament of the patient. X-rays should be made. Differential diagnosis should include prolapse of the ventricle wherein the prolapsed tissue can be replaced, whereas cysts cannot be forced out of view. In infants an erroneous diagnosis of congenital stridor or enlarged thymus may be made; and in older children the diagnosis of foreign body, papilloma, asthma, or diphtheria. Dr. Woodruff is to be commended upon his careful review of the literature and upon his successful handling of his case.

Dr. M. A. Glatt, Chicago: It was indeed a pleasure to have listened to Dr. Woodruff's description of his case and to the review of the literature on cysts of the larynx. My experience is limited to three cases, one somewhat similar in origin to that described this morning, one originating from the ventricle and the third from the anterior surface and free edge of the right cord close to the anterior commissure. All were in adults. The specimens of the last two cases are in the pathologic laboratory of the Illinois Eye and Ear Infirmary. The last one was of particularly great importance because clinically it simulated a malignancy. Since the squamous epithelium of the true cord does not contain mucous glands from which a cyst can form one can easily err in the diagnosis unless a biopsy is made. While the latter procedure is not always the most ideal method of arriving at a diagnosis, we at times must resort to it when in doubt.

Dr. George Woodruff, Joliet (closing): I want to thank the discussors for their kind remarks, and Dr. Ford for emphasizing some of the things I did not bring up. In going over the literature I noticed that Dr. New in a report of three cases advocated complete removal of the cyst and cauterizing the base. There is a question in my mind as to why one should cauterize after the cyst is removed completely. Many have been treated by removal of as much as possible and then cauterizing, with good results, without troubling to remove all the cyst. In such cases I should think the cauterizing would be an aid. As Dr. Ford pointed out, in many of these cases the chief symptom is the sen-

sation of foreign body in the throat. So far as the method of removal is concerned, that, of course, will have to vary with the individual case. You can set down no standard method, as it depends upon the size, the location, the character of the cyst, and many other factors.

## HYPERTENSIVE HEART DISEASE

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In a paper previously published,<sup>1</sup> a classification of heart disease as it occurs throughout human life, was suggested. Hypertensive heart disease was not conceded a distinctive type in that classification, nor is it herewith considered a fast and unvarying clinical entity. After all, while this type of heart disorder presents a symptom-complex constant and characteristic, and occurs so frequently in the declining years of life, as to make it almost symbolic of senility, we can and do find hypertension associated with both rheumatic heart disease of youth, and cardiac syphilis of middle life. However, it is proposed here to consider hypertensive heart disease as it is most frequently encountered, with a normal heart in youth and middle age, showing symptoms and signs of progressive embarrassment under the influence of sustained hypertension.

A theoretical discussion of the etiological factors responsible for hypertension can claim no place in the subject at hand. Whether arteriosclerosis involving the arterioles particularly of the kidney is the underlying factor, or whether a sustained elevation of blood pressure be charged to vascular spasm, infections of sundry varieties, or to the influence of heredity, etc., is irrelevant. We propose to study hypertensive heart disease, grouping its more characteristic symptoms and physical expressions, its laboratory manifestations, and theorizing upon its prognosis and management.

Just as hypertension can and does exist for a varying number of years, with few if any subjective manifestations, so too are the heart symptoms of slow and insidious origin. So long as the left ventricle, which bears the brunt of the burden in elevated vascular tension, is fully com-

<sup>1</sup>Read before Section on Medicine at annual meeting of Illinois State Medical Society, at Springfield, May 16, 1934.

petent, the individual rarely suspects an abnormal situation. With a beginning failing myocardium, however, a very definite chain of symptoms is rather rapidly and consistently built up.

It is possibly of no great moment which subjective manifestation appears earliest, and without any extensive statistical data, there must be a doubt in this regard. However, from the literature one might suspect that dyspnea deserves an early mention. Thus McMullin<sup>2</sup> states, "breathlessness and tachycardia are early symptoms," and again O'Hare<sup>3</sup> insists, "the most frequent symptom is dyspnea, which varies greatly in degree." Shortness of breath is certainly not only an early symptom of beginning myocardial embarrassment but is also one of the most constant. Its onset is insidious and is noticeable only on exertion, inconsequential exertion however, which previously has caused no distress. A suspicious and distinguishing feature of this dyspnea, which also has a rather definite prognostic import, is the matter of degree and duration. A fleeting, mild shortness of breath on moderate effort, may be consistent with a normal left ventricle, whereas a prolonged respiratory distress has very considerable significance. Certain it is that the average individual admits respiratory discomfort early in the course of his disease.

Heart consciousness in some form or other deserves a prominent place among the early subjective symptoms of hypertensive heart disease. This may consist of an indefinite precordial distress, a tachycardia, an arrhythmia, or an irregularity. Probably, however, the most frequent and incidentally the most logical form of heart consciousness elicited in the history is that of an exaggerated or forceful beat. The individual is constantly aware of his vascular apparatus, not only during exercise, but even when at complete rest in bed. He feels his heart beat and in many instances is annoyed with pulsating carotids. If he be introspective, he may even voluntarily call attention to the pulsation in smaller vessels, even to his very fingertips.

Cough is a symptom of hypertensive heart disease which deserves early mention. Not the moist cough of pulmonary edema which appears much later, but a dry bronchial type accompanying effort. Dyspnea, heart consciousness and

cough constitute a very important diagnostic triad, important because they appear early and constantly.

There is another symptom which it seems to me is underestimated and neglected, and which is entitled to considerable prominence as a subjective manifestation of hypertensive heart disease. I refer to substernal pain. This has nothing in common with the precordial distress previously mentioned. It probably has as its pathological mechanism a stretching or dilating of the aorta, hence is encountered as an effort pain. It may be severe enough to over-shadow subjectively all other early symptoms.

Hypertensive heart disease, occurring as it so frequently does in the later decades of life, is commonly complicated with a coincidental sclerosis of the coronary vessels. Furthermore, the strain on the left ventricle occasioned by prolonged hypertension calls for an increased output on the part of the coronary arteries,—wherefore the frequent association of the anginal syndrome with this type of heart disease.

Thus far we have considered only the subjective symptoms of hypertensive heart disease arising from an embarrassed left ventricle. There comes a point, however, when this embarrassment yields to failure and as a result the right ventricle proves incompetent. The incompetency of the right ventricle creates a picture so characteristic and so constant that it hardly needs description. Ushered in with an edema of the distal extremities, it spreads as a generalized anasarca. In due time, the individual body cavities show evidence of passive congestion. Thus the abdomen becomes distended, both with its enlarged liver and its rapidly accumulating fluid. The chest reveals a hydrothorax, and the individual complains of hemoptysis, the result in part of pulmonary congestion or again of distended varices.

Before passing to the physical signs of hypertensive heart disease, we might recount hurriedly the general constitutional or distal symptoms. That extracardiac causes, particularly the hypertension *per se*, are responsible for most of these manifestations is unquestionably true, and yet the failing heart must assume part of the responsibility. Thus for example, the combination of mental depression, early fatigue and nervousness so frequently encountered in hypertension



has a distinct cardiac background. They are dependent in a great measure upon an inadequate cerebral circulation. I wonder whether the same cannot be said about vertigo and even amnesia, common and annoying symptoms, occurring in the wake of this disease? The gastric upsets, particularly anorexia, belching and kindred disturbances also have a circulatory background. In contradistinction, tinnitus and visual impairments are probably entirely extracardiac, the former due to increased tension, the latter to changes in the retinal vessels.

We come now to the physical manifestations of hypertensive heart disease. Beginning again with an embarrassed but competent left ventricle, we are justified in suspecting definite physical changes. The size and configuration of the heart are affected early. By means of the orthodiagram, or the two meter plate, we find an increase in the heart's dimensions. This increase is largely in its cross-spread and more specifically is due to an enlarged left ventricle.

We are often amazed at the discovery of a very considerably enlarged left ventricle in the practical absence of subjective heart manifestations. We repeat, that so long as the left ventricle is to all purposes competent, the individual is frequently unaware of the existence of any cardiac abnormality, unless it be the important subjective manifestation of heart consciousness, or more specifically exaggerated forcefulness of his heart. Very early then, the hypertensive heart shows physical evidence of a beginning spread or enlargement downward and towards the left axilla. Shortly, over this spreading ventricle a murmur is audible. This murmur is and remains soft in quality, is systolic in time, and may be heard in the left axilla, but contrary to the organic murmur of mitral insufficiency it is rarely audible under the left scapula. Another important diagnostic feature is its disappearance or diminution on exercise, provided the left ventricle boasts of resilient muscle.

In addition to an enlarged left ventricle and a systolic apical murmur, two other physical manifestations occur so frequently that they must be included to complete the picture. They both have to do with the aorta and consist of an accentuation of the aortic second tone and a systolic basal murmur. This murmur is soft in quality, is heard best over the aorta or at least

over the base of the heart, is not widely transmitted and is probably the result of a dilated aorta.

The diagnosis of hypertensive heart disease is, as a rule, simple to the degree of being elementary. The subjective symptoms are both characteristic and constant, and the physical signs appear early. The sphygmomanometer provides certified evidence. An estimation of the degree of heart involvement or impairment is, however, not always so simple.

In the first place, the extent of hypertrophy or spread of the left ventricle is no true criterion, since some hypertensives early in the course of their disease show considerable involvement, whereas others carry an increased vascular tension for years with little or no demonstrable physical evidence. In the second place, while it is unquestionably true, that a failing right ventricle bespeaks an incompetent left chamber, we have no index, delicate or otherwise, which predicates the arrival of this transition point. In some instances, a seriously embarrassed left ventricle carries on after a fashion for a very considerable time without overloading the right heart; in others, it relegates the overload quickly. We have, however, criteria, some subjective, others objective, which when augmented with definite laboratory findings provide a rather accurate clinical prognosis.

A severe degree of discomfort of any variety, directly attributable to the hypertensive heart, is of itself an unfavorable indication. Particularly is this so, if from the history we are observing the disease early in its course. Thus, marked heart consciousness on trivial exertion or dyspnea which prolongs itself appreciably into a period of rest speaks for considerable heart muscle strain. Particularly discouraging is the occurrence of spasmodic dyspnea while at rest. Contrary to common belief, this symptom is not restricted to the disease in its advanced stage, but is encountered sometimes quite early, and in those instances has a serious omen. The co-existence of the anginal syndrome with hypertensive heart disease also renders the outlook more dubious.

From a physical standpoint, we are able to gather further corroborative evidence bespeaking a poor prognosis. Beginning with the heart itself, we repeat that the degree of hypertrophy

is no index as to the reserve of the heart muscle. However, the heart does furnish considerable direct evidence as to its reaction to sustained hypertension. Thus, for example, the quality of the apex beat can be quite instructive. A good firm impulse or first sound clear, or muffled with a systolic murmur, it makes no great difference, bespeaks a potentially virile heart muscle; the antithesis means tire or fatigue. The rate and rhythm have prognostic significance. As regards the former, anything over one hundred per minute while at rest is undesirable. The rhythm of the hypertensive heart admits of several pertinent variations. While extrasystoles are common and friendly enough, if not too frequent, a gallop type of rhythm is ominous. The aorta, too, is deserving of careful scrutiny. A marked dilatation as certified by the orthodiagram, with a superimposed systolic blow suggests not only a yielding wall but also probably an arteriosclerotic undermining process as its mechanical factor. The question must naturally arise, what prognostic deductions can be made from the degree of hypertension itself? The answer proves more complex than should be suspected. It seems unnecessary to remark that a pronounced hypertension should be and is in fact, more alarming than one of negligible degree. However, even there in the matter of actual experience a definite ratio cannot be set up. For all too frequently the heart of the individual with a systolic pressure of 200 millimeters carries on as stoutly as that of another carrying a load appreciably less. For many years the matter of the diastolic phase was almost ignored in blood pressure study. Now as so frequently happens, the pendulum has rebounded to an unwarranted height. Both are important within their limitations. It is probably true that an inordinately high diastolic pressure, and therefore a low mean pressure, is an unfavorable situation. Certain it is that the subjective distress of many hypertensives is governed more by the gyrations of their diastolic than their systolic pressures.

The electrocardiograph, the X-ray and all other laboratory armamentaria individually and collectively, can be of greatest diagnostic and prognostic value. They must never attempt to compete with clinical observations carefully carried on. In the study of hypertensive heart disease the electrocardiograph has merited an

importance place. Some of the evidence it provides is purely corroborative, thus for example, its left axis deviation coincides with the dimensions visualized in the orthodiagram and anticipated by the physical examination. Again it places on permanent record the ventricular extrasystoles or gallop rhythm encountered and noted over the heart and at the radial pulse. It rather definitely labels an otherwise occasionally ambiguous type of heart disease, as hypertensive, through the quite constant T-wave changes (Willius<sup>4</sup> reporting on a series of hypertensive hearts claims this constancy in forty-two per cent).

In addition to this corroborative evidence which of itself is both helpful and welcome, the electrocardiograph furnishes or suggests other information far more important. Thus, we are intensely interested in the amount of damage incurred by the muscle of the hypertensive heart. We have ample evidence of its increased size both clinically and through the orthodiagram, but as twice stated this is no index as to its potential capacity. It is true the subjective manifestations and diverse physical secondary signs give us a clue, the electrocardiograph however emphasizes and adds to our knowledge of myocardial damage. Finally and possibly most important of all, it suggests the presence or absence of pathological changes in the coronary vessels.

We come now to the matter of treatment. I am convinced that no type of heart disease calls for more radical measures, and in return yields better results. In some instances, it demands the revamping of an individual's entire social and economic structure, for moderation is the keynote of therapy in hypertensive heart disease.

Not only can the hypertensive individual's life be materially lengthened, but his days can be made happier, and his symptoms less prominent and annoying the while. It is true it demands a high degree of cooperation, and many sacrifices, and yet in most instances it does not call for invalidism. The management of hypertensive heart disease is basically twofold. On the one hand, it calls for active support of the heart and on the other, relief from excessive strain through diminution of existing hypertension. The attainment of neither is possible without moderation, mental calmness, and physical rest.



It is interesting to observe an intelligent person who has suffered a coronary insult and survived. Such an individual furnishes a beautiful example to any hypertensive. Not only his behavior but his entire mental reaction towards life has changed. He seems to understand the seriousness of his situation, seems to sense that he has approached perilously near the crater's edge, and so he cautiously backs away, and from then on calmly and serenely travels the middle path, and with a new and truer sense of proportions, refuses to be diverted by inconsequential annoyances and distractions. And so it must be with the hypertensive. He must re-evaluate himself and his life, make necessary adjustments and settle down to a degree of moderation and calmness consistent with his means of livelihood.

It is manifestly impractical to lay down any hard and fast rules, arbitrarily defining the amount of physical exertion permissible to individual hypertensives. The axiom, "stop short of physical fatigue," is logical, covers the average situation, and applies equally to work and to play. This advice sanely and safely regulates a man's occupation, his golf, his walking, swimming, etc., and prohibits entirely the more strenuous activities which by experience occasion an almost initial fatigue.

Of even greater importance than physical exertion is the matter of mental calm to the hypertensive. He must be taught mental poise. Anger, fear, unrest, worry and above all emotional explosions, are anathema. Going even further, brain fog, or mental fatigue, is undesirable and can be offset by an avocation, by developing an outside interest, thus obviating and preventing the depression and even the melancholia so common to chronic hypertensive cardiacs. If irascibility be made to yield to tranquility, hypochondria to apathy, melancholia to cheerfulness, then will much have been accomplished.

The individual with hypertensive heart disease requires more sleep, more bed rest than one not so afflicted. Whereas eight hours at night have previously sufficed, ten hours are now necessary, and twelve not excessive. If in addition, an afternoon rest period of one hour proves practical, the therapeutic effect is encouraging, both subjectively and objectively. The common,

annoying and almost inevitably encountered insomnia must be dealt with patiently and experimentally, but must stop short of narcotics.

We come now to the matter of diet, and we might preface with the general statement that we are more concerned with the quantity or volume than with the type of food. Here again, moderation is the governing principle. The gastrointestinal tract must never be surcharged. Food should be simple and rather evenly distributed, preferably in at least four feedings, with no one outstanding big meal. It is particularly important that the last meal of the day, in the evening, be frugal and void of rich and undigestible foods. A gormand with a hypertensive heart is short-lived. Stimulants, alcohol, coffee and tea are restricted or prohibited. The allowance of tobacco is curtailed or entirely eliminated. Seasonings of all varieties are minimized to a point of compatibility with individual appetites, with the exception of salt which is entirely deleted. Sodium chloride has no place in the diet of the hypertensive heart. This statement in a different form is encountered so universally in the literature which deals with heart disease and hypertension, that it has been quite generally accepted. Some experimental work has been done to bolster the theory. A few years ago we<sup>5</sup> studied the result of a high sodium chloride intake on four types of individuals, viz:

1. Apparently normal persons with no evidence of cardiorenal vascular disease.
2. Nephritics.
3. Hypertensives.

4. Hypertensives with cardiac involvement.

Our findings were interesting and instructive and were briefly as follows: An increase in both the systolic and diastolic phase of pressure, in all four classes. The increase rose crescendo from one to four, and in that class was appreciable. Not only was there a pronounced elevation of tension in hypertensive cardiacs after the prolonged ingestion of three drams of sodium chloride daily, but the increased tension persisted for a varying number of months after its discontinuance.

We come finally to a consideration of the use of drugs in the management of hypertensive heart disease. Again a prefacing statement to wit, that we have no specific nor a near specific

to cover this situation. The therapeutic management of this disease will be twofold. It will embrace remedies to combat the hypertension itself, and others to support a tiring myocardium. The former comprises a rather formidable but unsatisfactory array of sundry drugs, of which probably the alterative, potassium iodide, merits mention, together with the diuretics, more specifically diuretin, theocin, and theocalcin. Of the last three, theocalcin seems to possess a worthwhile vasodilator action which often produces desirable results. For heart muscle support digitalis remains our sheet anchor. Not only does hypertension constitute no logical contraindication, but the subjective and objective results are most encouraging.

30 North Michigan Avenue.

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#### DISCUSSION

Dr. N. S. Davis (Chicago): I have been very much interested in Dr. Berghoff's excellent presentation. There are just two or three points I want to emphasize.

One early symptom of hypertension that he did not mention and that is quite commonly met with, is a gaseous distention of the abdomen as an early sign of cardiac failure.

Another thing that I feel we should study and concentrate on a great deal is an attempt to make an etiological diagnosis.

We are not going to get very far in the treatment until we know the cause of this condition and we certainly will not get anywhere so far as prevention is concerned. There should be a classification of both hypertension and arteriosclerosis similar to that of heart disease; that is on an etiological, physiological and anatomical basis.

A third point to mention is that there should always be a control period to find out what the normal blood pressure curve is before any therapy is attempted. There are tremendous spontaneous variations in blood pressures, and if we do not know how the curve is in a certain individual case, any method of treatment may seem to produce wonderful results if the patient is observed for only a few weeks or months.

Most of the articles on treatment of hypertension report cases that have not been followed for a sufficient period either before or after treatment is instituted. The normal blood pressure curve of the individuals has not been ascertained and treatment has not been fol-

lowed for a sufficient length of time to demonstrate whether or not it produces any material changes in this curve.

Dr. S. E. Munson, Springfield: I was very pleased to hear this paper of Dr. Berghoff's. It is timely, although we have only three half-day programs in medicine, we have something in regard to hypertension. Yet, necessarily, all the time newer thoughts are coming to us and newer ideas of early diagnosis that are so important in these cases.

I was reminded yesterday, in meeting one of my medical friends, of this. He said, "Well, I had an examination the other day. You remember I came to you about two years ago when I thought I had some heart trouble." I think he had some drop beats.

He said, "I was in St. Louis about a week or two ago and had a careful examination, and nothing was found wrong with my heart," which opinion I gave him at that time. He was over-working.

He said, "I have seen quite a few heart cases just recently, and have had five cases of angina pectoris die in the last few weeks, without any observation before, called just when the patient had succumbed or shortly afterward." Of course, these were his conclusions without post-mortem findings.

I remarked to the doctor, and I emphasize it at this time, that it is very important we become hypertension-minded. The lower blood pressure is the one to which we pay more definite attention than we do the systolic. On the other hand, as the doctor very clearly brought out in his paper, I think probably twenty-five percent of heart cases that succumb from hypertension at a later time, may succumb from angina pectoris without definite symptoms. The cardiograph gives no symptoms. So we must, as I remarked to the doctor in regard to his cases, see these patients at an earlier time. Our picture must come to us sooner. As to these cases that die suddenly without any observation, that have probably been seen by various physicians, it is really unfortunate. I think if we would be more careful we would see some of the earlier symptoms and could probably guide these patients to a longer period of life.

Dr. Edward Bowe (Jacksonville): I am very much interested in Dr. Berghoff's paper because of my personal experience as some of you know.

This really is one of the great opportunities for physicians to do something in heart disease. There are two types of heart disease in which we can do something for a patient.

One is that type of heart disease in which the acute infections enter, and the second is the type which is under discussion by Dr. Berghoff.

McKenzie has put this subject in an understandable way to men who are doing clinical medicine. It is said when a person begins to become heart conscious it is then time to make a very thorough and comprehensive examination and determine your entire pathological complex.

I was sorry the doctor did not have time to go into this subject as a pathological proposition, because I can state from my own experience that is the ultimate solution of it. And until we can determine the etiology



and have a picture with the entire pathological complex we will never be able to get very far in treatment.

I was sorry the doctor did not discuss the question of pulse significance after a definite pathology was determined. He mentioned galloping rhythm, the pulse variation is important to men who are doing medicine in a casual way and have not the means he has of making an accurate diagnosis and observation.

For instance, in my own case, I have a pulse around forty-eight and fifty. And what is the pathology in a persistent low pulse? What is the pathology in a persistent galloping pulse? If you have a very definite picture of the pathology with which you are dealing, you will have a very definite idea of treatment, and probably prognosis.

I am sorry we haven't more time to discuss this paper. It is a subject in which, after two years of observation of nothing else, I am very much interested.

There is not a greater subject in medicine than the one which the doctor has presented. There is not a field in medicine—internal medicine—that affords the opportunity for younger men that the study of heart does.

We can bring it under two great classifications; first, that type in which the acute infections enter, and the resultant pathology in the general circulatory and renal systems following infection, and the type which the doctor discusses here where we do not recognize the etiology until the disease is fixed and well established. And your attention is not called to it until the patient receives some great shock with something like a renal involvement or coronary thrombosis, and he is then beyond rational care and treatment.

There is only one treatment for heart disease, and that is rest.

There is only one thing to do for a heart case and I will tell you from personal experience, and that is to be quiet.

Dr. Berghoff: When I prepared this paper on "Hypertensive Heart Disease" I found it absolutely impossible to keep down to fifteen minutes. My paper runs to practically thirty minutes. I could not help myself, the subject is so broad.

I did not get to treatment, but I feel strongly that in addition to being able to do a lot for our acute rheumatic young hearts, there are two other types we can do still more for—the hypertensive—probably more for that than any other except the heart of the aged.

The treatment of hypertensive heart disease itself is such a big subject that in two minutes I could not begin to try to cover it.

However, the keynote of the treatment of hypertensive heart disease is three-fold. It consists of physical rest or moderation, mental moderation, and moderation in the matter of food consumption.

I feel the average individual with a hypertension should feed himself four or five times a day, never taking a big meal. Most essentially he should not go to bed at night until three or four hours after a meal.

I cannot go into the matter of drug treatment at all.

I want to say also, the individual's mental reaction is all important. He should neither be melancholy nor

must he be irascible. He must develop poise and mental calm.

## SOME CIVIL LEGAL ASPECTS OF CHRISTIAN SCIENCE

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The object of this article is to ascertain and analyze some of the most unusual civil legal aspects of Christian Science. However, in order to understand this phase of the subject more thoroughly, it will be necessary to know beforehand something about Christian Science itself. Christian Science generally is known as a form of faith healing and mental therapeutics. It was founded by Mary Baker Eddy of Concord, New Hampshire, in the year 1866, and bases its teachings upon her writings, the most important of which is "Science and Health, with Key to the Scriptures." This book, popularly known as the Christian Science textbook, is simply a quasi-legal re-interpretation of the Bible as understood by Mrs. Eddy. Its theology is based upon the belief that all human ailments and diseases have no real existence and are merely false beliefs, illusions or "error of mortal mind" which can be destroyed by "Truth" through the operation of "Divine Mind" by knowing such to be the truth. It is the application of this fundamental doctrine of Christian Science by Christian Scientists and Christian Science practitioners<sup>1</sup> to themselves and to men, women and children who are actually suffering, or who merely believe that they are suffering from some mental or physical ailment or disease, which constitutes the practice of Christian Science.

*Belief in Christian Science.* The apparent irrationalism of Christian Science has led to several cases in which the legal rights and remedies of Christian Scientists have been questioned and even denied.

(A) *Not an Insane Delusion.* Matter of Brush<sup>2</sup> was decided in New York in 1901. In this case, the testatrix was a Christian Scientist.

1. One who is a specialized practicing Christian Scientist; has met and passed certain requirements of the "Mother Church," the First Church of Christ, Scientist, of Boston, Massachusetts; is registered in the Christian Science Journal; has no other occupation or conflicting interest, and is entitled to charge a fee for his services.

2. 35 Miscel. 689, 72 N. Y. S. 421.

In her will, testatrix left a legacy of \$20,000.00 to the First Church of Christ, Scientist, of New York City. Her relatives sought to have the legacy set aside on the ground that her belief in Christian Science was an insane delusion and that therefore she lacked testamentary capacity. The court decreed that the legacy was valid, and held that "however opposed these teachings (Christian Science) may be to the beliefs or notions of others, they are founded on the religious convictions of those professing them. That being so, the court cannot say that those persons are mentally unsound." The rule laid down in this case is that a belief in Christian Science is not an insane delusion.

(B) *Qualification as a Juror.* In *re Malvasi's Estate*<sup>3</sup> was decided in California in 1929. This case was a will contest, involving unsoundness of testator's mind. Mrs. Post, a Christian Scientist, was examined as a juror in this case, and was accepted. She joined with the other jurors in upholding the will. Later, counsel for the contestant discovered that Mrs. Post was a Christian Scientist, and made a motion for new trial on the ground that as a Christian Scientist, Mrs. Post did not believe in the existence of unsoundness of mind because it was a human disease, and that therefore she was disqualified as a juror. In an affidavit against the motion, Mrs. Post deposed that Christian Science was a healing agency and that it at all times recognized the existence of human disease, including mental incompetency. The court denied the motion, stating that Mrs. Post, *according to her conception of Christian Science*, "understood" Christian Science to recognize the existence of disease, including mental incompetency, and that therefore Mrs. Post was not disqualified as a juror and was also "not chargeable with any misconduct for failure to volunteer information concerning her religious belief and that appellant (contestant) was not deprived of a fair and impartial jury." There is no doubt that if Mrs. Post had the true conception of Christian Science, which is the non-existence of all human ailments and diseases, the court certainly would have ruled that she was disqualified as a juror in this case. Thus it can be seen that Christian Scientists are disqualified as jurors in personal injury cases and in all other cases

in which human ailments and diseases, and mental suffering are the issues involved.

(C) *No Redress for Personal Injuries and Mental Suffering.* Probably the most interesting case that was ever decided on Christian Science is the case of *Fort Worth & Denver City Ry. Co. vs. Travis*.<sup>4</sup> This case was decided by the Texas Court of Civil Appeals in 1907. In this case, plaintiff brought suit to recover damages for his wife's personal injuries and mental suffering caused by her expulsion from one of the defendant's trains. At the trial, defendant's counsel sought to cross-examine plaintiff's wife to prove that she was a Christian Scientist and therefore was incapable of sustaining physical injury and mental suffering. The trial judge sustained plaintiff's objection to this cross-examination, and judgment of \$190.00 was awarded plaintiff. Upon appeal, judgment was reversed, the court declaring that the trial judge "erred in treating the inquiry as an immaterial one, since the testimony was pertinent to the main and essential issue in the case, to-wit, the mental and physical suffering of the witness (plaintiff's wife). *If she had such control of her feelings or thought she had, as to render her insensible to pain when she willed to be, we see no reason why that circumstance should not have been considered by the jury in determining the extent of her suffering and the compensation to be made on account of it.*" In substance, the holding in this case is that Christian Scientists can recover little or no damages for personal injuries, mental pain and suffering. This rule is also applicable to those cases in which a Christian Scientist brings suit for breach of promise, alienation of affections, seduction and other suits of like character in which mental suffering is the gist of the action. Notwithstanding the harshness of the effects of this ruling on Christian Scientists, it represents the overwhelming weight of authority in the United States.

*Civil Actions by Practitioners.* The only case ever decided by the higher courts relative to a practitioner bringing suit on a matter pertaining to Christian Science is the case of *Wheeler vs. Sawyer*<sup>5</sup> which was decided by the Supreme Court of Maine in 1888. In this case, a practitioner brought suit against his deceased pa-

3. 273 Pac. 1097.

4. 45 Tex. C. A. 117.

5. 15 Atl. 67.



tient's heir to recover \$30.00 compensation for Christian Science treatments given to the patient shortly before his death. The court awarded judgment to the practitioner on the ground that patient chose that form of treatment and agreed to pay for it, and that there was "nothing unlawful or immoral in such a contract." The rule deducible from the reasoning of this case is that where a patient engages a practitioner, the latter can recover his fee for rendering Christian Science treatments in an action at law against the patient or his estate. However, in order to recover against a third party, that is, one who has not received the treatments, the practitioner not only must prove that the third party engaged him, but also had agreed to pay him for such Christian Science treatments. In the absence of such agreement, the practitioner cannot recover his fee even though the third party is legally responsible for the patient's disease or injury or mental suffering. The reason generally given in such cases for a third party's non-liability for a practitioner's fee, is that Christian Science treatments are not such treatments as will reasonably "relieve and cure" a human ailment or disease.<sup>6</sup>

#### NEGLIGENCE IN FAILING TO OBTAIN PROMPT MEDICAL CARE

*In General.* One who has sustained personal injury through the fault of another is under a duty to secure promptly the necessary medical and surgical advice and treatment, if the nature of the injury is such as reasonably to require it, so as to prevent or reduce aggravation of physical injury and mental suffering. If the injured party is negligent in allowing an unreasonable length of time to elapse between the date of the injury and the time medical and surgical care is resorted to, such negligence is regarded in the eyes of the law as a sufficient intervening cause, and may either bar in toto or reduce to a minimum the amount of damages that can be recovered from the party at fault.

(A) *Adult Christian Scientist.* The case of *Ash vs. Barker et al.* illustrates how the law applies to an adult Christian Scientist who is negligent in obtaining prompt medical care. This case is a workmen's compensation case and was decided in California in 1915. The applicant

was a middle aged woman who managed an apartment house. In the course of her employment, she fell from a chair, severely injuring herself. From the date of her accident until forty days later, when she ended her employment on account of the unbearableness of her suffering, she relied solely upon Christian Science treatments by a practitioner to cure her injury. Shortly afterwards, she submitted to a surgical operation. The evidence showed that she should have taken the operation immediately after the accident. In holding that she was not entitled to compensation, the Industrial Commission declared that Christian Science treatments are not such as "may be reasonably required to cure and relieve where surgical treatment is indicated by the symptoms. In delaying such surgical treatment for more than two months, applicant not only jeopardized her own interests, but the interest of her employer, and in fact slept upon her rights to demand medical and surgical treatment at the expense of her employer or her employer's insurance carrier." The reason for this decision is quite obvious. The law imposes on an adult Christian Scientist the duty of acting as a reasonable and prudent person would act under the circumstances of this case. Here the applicant knew or ought to have known that her injury was of such a serious nature as to require immediate medical attention. Her failure to take such action within a reasonable time after the accident was considered the primary cause of the serious aggravation of her injuries.

(B) *Infant Christian Scientists.* The law, however, is not so harsh towards infant Christian Scientists of tender years, who have not reached the age of discretion, and who are entirely dependent upon the care given them by their parents or guardians, who are also Christian Scientists. A case on this point was decided in Connecticut in 1932.<sup>8</sup> In this case, plaintiff, an eight year old girl, was just stepping off the edge of the road, when she was struck by defendant's LaSalle sedan which was being driven at a very fast rate of speed. The most serious injury plaintiff sustained was a fractured and dislocated pelvis. Plaintiff and her mother were both Christian Scientists. On the day of the accident, a doctor was

6. *Ash v. Barker, et al.*, 2 Cal. L. A. C. 577 (1915).

7. Cal. L. A. C577.

8. *Lange v. Hoyt*, 114 Conn. 590, 159 Atl. 575.

called. He gave plaintiff first aid treatments, and had her taken to the hospital where she was given treatment. Later in the same day, plaintiff's mother took her home against the doctor's warnings. For the next 25 days, no medical treatment was given plaintiff, except some nursing and orthopedic treatments. During this interim, plaintiff also was given Christian Science treatments. Plaintiff brought suit for damages, and her mother brought suit for expenses incurred. At the trial, the evidence showed that plaintiff had a permanent pelvic deformity which would interfere with normal childbirth. Defendant contended that plaintiff's injury was aggravated by her not having the proper surgical treatment during the 25 day period, and that proper surgical care from the beginning would have effected a substantial cure. The court upheld judgment for the plaintiff declaring that "while the test of conduct on the part of plaintiff in promoting a recovery from injuries suffered is one of reasonable care, and cannot be made to depend upon the idiosyncrasies of personal belief no matter how honestly held. . . . A child of the age of eight years is necessarily dependent upon her parents as regards the steps to be taken to bring about a recovery from an injury, and if she is not herself guilty of negligence or improper conduct, the failure of the parents to take the proper steps to that end, by a parity of reasoning, cannot be such a cause of any portion of the injuries as will defeat a recovery for all the results of the defendant's wrongdoing." There can be doubt that had the delay in this case been somewhat greater than 25 days, the plaintiff here would have recovered very little damages. The trial judge in this case had instructed the jury very favorably for the defendant insofar as the mother's claim was concerned. In reviewing this point, the Supreme Court of Connecticut strongly intimated that such instruction was justified by the facts of this case.

*Civil Actions Against Practitioners.* Dissatisfaction with the results of Christian Science treatments given by practitioners, and general dislike and distrust of practitioners, together with wrongful conduct on the part of practitioners, has led patients, their relatives and individuals to institute legal proceedings against practitioners for malpractice, deceit, divorce and fraud.

(A) *Malpractice and Deceit.* The case of *Spread v. Tomlinson*<sup>9</sup> was decided by the Supreme Court of New Hampshire in 1904. In this case, plaintiff, a middle aged woman, had an attack of appendicitis. She informed defendant, a practitioner, of the nature of her trouble and her dread of a surgical operation. Defendant told plaintiff that a surgical operation was unnecessary and that he could cure her by Christian Science treatments. Plaintiff employed the defendant for several days, during which time her illness increased. She finally placed herself in the hands of a physician, submitted to a surgical operation, and was cured. Plaintiff brought suit against the practitioner for "malpractice" and deceit. The evidence tended to show that the defendant's "treatment" was injurious to the plaintiff, and that if it had been persisted in, a cure would have been impossible. The court found for the defendant, declaring that one who holds himself out as a Christian Science practitioner and is employed to treat any human ailment or disease according to the methods followed by such practitioners, is only required to possess the "knowledge" and to "exercise the skill" of the ordinary practitioner, and that there was "nothing here to show that defendant failed to do so in giving Christian Science treatments to the plaintiff." The court further stated that "it is a matter of common knowledge that honest men, not only in the past, but do now, entertain religious beliefs which appear to the great majority of their fellow men both unsound and incapable of belief," and that defendant's representations were not fraudulent, but merely a strong expression of a religious opinion based on his apparently sincere belief in Christian Science."

(B) *Divorce.* Surprising as it may seem, a married person may obtain a divorce on the ground that his (or her) spouse is a Christian Science practitioner. Such a decision was rendered by the Supreme Court of New Hampshire in the case of *Robinson v. Robinson*.<sup>10</sup> In this case, the husband was a druggist. He and his wife were a very happy and loving couple until two years after their marriage, when his wife became interested in Christian Science and became a "Doctor of Christian Science." Her

9. 73 N. H. 46.

10. 66 N. H. 600 (1891).



practice of giving Christian Science treatments caused the husband to be ridiculed. As a result, his business suffered, his health became impaired and he became morose and despondent. He begged his wife to give up only her practice of Christian Science and not her belief, but she refused. He thereupon brought suit for divorce on the grounds of extreme cruelty. The court declared that the husband was entitled to a decree of divorce because the wife's conduct as a Christian Science "Doctor" came within the terms of the statute as such behavior on her part as to have the effect of endangering the health and *reason* of her husband.

(C) *Fraud*. An action can be maintained against a Christian Science practitioner for fraud by relatives of a deceased patient who was defrauded by the practitioner. This is the holding of the case of *Christian v. Canfield*<sup>11</sup> which was decided in New Jersey in 1931. The facts in this case were as follows: Miss Christian died at the age of 67, being a confirmed invalid for over 25 years. For several years prior to her death, she relied exclusively upon Christian Science treatments given by defendant, a "Christian Science healer." After Miss Christian's death, her relatives brought suit in equity to set aside two instruments made by Miss Christian which conveyed securities valued at \$13,730.00 as a gift to defendant, on the ground that the instruments were secured by fraud and undue influence. The evidence showed that defendant had charge of Miss Christian's financial affairs, and that the latter was under the influence of opiates at the time that the instruments were executed. In entering a decree in favor of the relatives, the court declared, "at the outset, we start with the presumption against the bona fides of transaction because of the confidential and fiduciary relationship, and the burden of showing the contrary is upon the beneficiary. That includes the burden of showing not only that the transfer was not procured by fraud or undue influence, but that the nature of the transaction was fully understood by decedent, and that she had independent advice."

#### NEW ANESTHETIC MADE OF NATURAL GAS COMPOUND

St. Petersburg, Fla.—(S. S.)—Cyclopropane, a gaseous anesthetic which is becoming popular in some hos-

pitals because its use is not followed by nausea and also because it is relatively safe from explosion, has been prepared cheaply from certain constituents of natural gas, by three Purdue University chemists, Dr. H. B. Hass, E. T. McBee and G. E. Hinds. At the meeting of the American Chemical Society here they reported on the process by which they have lowered its cost to a fraction of what it used to be.

Dinitrophenol; its therapeutic and toxic actions in certain types of psychobiologic underactivity. J. H. Masserman and Harry Goldsmith (Psychopathic Hospital, Baltimore City Hospitals, Baltimore, Md.), J. A. M. A. 102:523-525 (February 17, 1934) No. 7.

Eighteen patients, between the ages of 18 and 40 years of age, and free of gross organic disease, but who during the previous year had changed from an outwardly satisfactory and adaptable mental state to one characterized by listlessness, indifference, mild depression and otiose lethargy, were treated with sodium dinitrophenol to determine the effect of the drug on the subnormal metabolic rates found in these apathetic psychiatric patients. In therapeutic doses the drug caused a rise of 29.6-36.1% in the rate of oxygen consumption and a mean weight-loss of 92/100 pound (417 gm.) per week. Toxic effects occurred in five cases and were characterized by a fall in blood pressure, tachycardia, acidosis, progressive stupor and one death. Indeterminate or adverse psychotherapeutic effects were observed in eight and four cases respectively, while six patients showed a definite improvement in their mental state, apparently attributable to the medication. They conclude that, "Dinitrophenol is therefore unpredictably toxic to some patients, but its careful administration may be of empirical benefit in certain types of recent and in securely established psychobiologic underactivity."

Toxicity of dinitrophenol. Reply to an inquiry by the editor, J. A. M. A. 102:562 (February 17, 1934) No. 1.

"Dinitrophenol appears in the urine promptly and is rapidly excreted, probably within one or two days after administration. Its fate in the body is not certain, but possibly a part is converted to the less toxic aminonitrophenol. Continuous administration for as long as six months has not resulted in perceptible harm to the liver or other vital organs. The only alleged liver damage so far reported in patients is one case in which a physician undoubtedly mistook the yellow color of the dye dinitrophenol for bile pigments. In this case the supposed evidence of liver injury disappeared at once when the drug was discontinued. So far, it is not known whether continuous administration over periods of years might be harmful, but it is significant that workers engaged in making it during the War, when there was continuous exposure for several years at a time, did not show evidence of injury to the liver or other vital organs."

Metabolic actions of dinitrophenol with the use of balanced and unbalanced diets. W. C. Cutting and M. L. Tainter (Departments om Medicine and of

11. 108 N. J. Eq. 547.

Pharmacology, Stanford University School of Medicine, San Francisco, California), J. A. M. A. 101:2099-2102 (December 30, 1933) No. 27.

The effects of alpha-dinitrophenol (1-2-4) administered by mouth for period from 7-16 days on basal metabolism, nitrogen balance, urinary organic acids, and body weight, were studied in four subjects on balanced diets and on diets unbalanced by including maximal amounts of carbohydrate, fat or protein. The caloric values of the diets were adequate for the normal metabolism of the subjects. With the diets, the basal metabolism was increased by from 30-50% during medication. The patients excreted less nitrogen than they ingested, yet there were definite losses of weight; body proteins were probably not broken down. The output of urinary organic acid was not increased, thus indicating that the fats were completely burned without giving rise to acidosis. Dinitrophenol may therefore increase the metabolism in man, regardless of the energy materials of the diet, although it primarily promotes burning of carbohydrates or fat. Clinically the drug is indicated in the treatment of obesity, but may be used therapeutically in other disease states with depressed metabolism. Its main advantages over thyroxine or powdered thyroid would seem to be a prompt and vigorous rise of metabolism and an absence of disturbing subjective symptoms.

An ear complication from dinitrophenol medication. H. Dintenfass (Philadelphia, Pa.), J. A. M. A. 102:838 (March 17, 1934) No. 11.

A young woman aged 28, weight 150 pounds (68 kg.) was given a 5 grain (0.3 gm.) capsule of alpha-dinitrophenol orally once a day. Immediately following the first capsule a burning sensation in the throat was experienced, followed by profuse perspiration, dull headache and bodily weakness. After four days, 20 grains (1.3 gm.) had been taken; the symptoms increased. There was severe exhaustion, rash on the chest, extreme dizziness, fullness and pain in both ears. The drug was discontinued, and all symptoms disappeared except the pain and fullness of the ears, which became more aggravated, and considerable impairment of hearing developed (about 30%). After an interval of a month, the drug was given again in similar doses; after 15 grains (1 gm.) had been administered, it was necessary to discontinue its use due to recurrence of all previous symptoms. There was no appreciable loss in weight at any time. Seven months after final discontinuance of the drug, the pain and discomfort in the ears disappeared, but there is still considerable impairment of hearing.

Report of a toxic manifestation due to "Dinitrenal." Sidney Hirsch (Cedarhurst, Long Island, N. Y.), J. A. M. A. 102:950 (March 24, 1934) No. 12.

A woman, aged 32, with negative previous history, developed generalized mottled eruption with violent itching centering in the palms of the hands. Ten days previously she had taken two capsules daily of "Dinitrenal" (Drug Products Company, Long Island City.

Each capsule is stated to contain dinitrophenol sodium, gr. 1½; suprarenal desiccated, gr. ⅛; Carbo vegetalis). At the end of a week the dosage was increased to four capsules daily in accordance with the instructions on the label. Physical examination revealed moderate swelling of both hands. The temperature was 99.6° F., the pulse rate 80. Examination of the urine was negative. The pruritis was resistant to all forms of treatment, and so severe that the patient was unable to sleep for six full days in spite of strong somnifacients. The pruritis gradually disappeared.

From the Library of The Wm. S. Merrell Company, Cincinnati, Ohio. M. P. Ballard, Librarian.

### CODE FOR SCHOOL CHILD SIMPLIFIES CARE FOR MOTHER

A code affecting the daily routine of school children's lives is being evolved by Health Commissioner Shirley W. Wynne of New York City as a phase of the present code-building activity of mankind.

He supplements the usual attentions given the physical equipment of the school-age child by careful and well informed parents with the following simple code for good management of young lives. For example, he says, every mother should ask herself:

"Do I give thought to my child's sleeping hours?"

"Do I insist that my child rest every afternoon?"

"Do I know how to use a quart of milk a day in my child's meals?"

"Do I know why I should give him a wide selection of vegetables and fruits?"

"Am I sure that my child gets his share of sunlight (or its substitute)?"

"Do I give my child plenty of time between breakfast and time for school to develop important health habits?"

"Do I know why my child should have clean hands and regular baths?"

"Do I weigh and measure my child regularly to know if he is growing as he should?"

"Do I know why I should take my child regularly to the doctor and dentist?"

"Replace the child's restraining rope by a spacious yard, boxes and planks for building, climbing and balancing in order to satisfy the child's curiosity for experimentation and construction."—*School Physicians' Bulletin*.

### HOW TO BECOME WEALTHY

In a New Hampshire city there dwells an octogenarian physician, who, in addition to his wide medical skill, is known far and wide as a composer of blunt philosophy. The other day a young man of his acquaintance called at the office.

"I have not come for pills this time, doctor," said the visitor, "but for advice. You have lived many years in this world of toil and trouble, and have had much experience. I am young, and I want you to tell me how to get rich."



The aged practitioner looked through his glasses at the young man, and in a deliberate tone, said:

"Yes, I can tell you. You are young, and can accomplish your objects if you will. Your plan is this: First be industrious and economical. Save as much as possible, and spend as little. Pile up the dollars and put them at interest. If you follow out these instructions, by the time you reach my age you will be as rich as Croesus—and as mean as h—l."

Teacher: "Robert, explain what are the functions of the skin."

Bobby: "The chief function of the skin is to keep us from looking raw."

## Society Proceedings

### COOK COUNTY

#### CHICAGO MEDICAL SOCIETY

*Regular Meeting, Wednesday, November 7, 1934*

#### GENERAL PRACTITIONER'S NIGHT

##### Appendicitis:

Its Early Recognition in General Practice—Leroy H. Sloan, Associate Professor of Medicine, Rush Medical College.

Apparent Increase of Mortality Rate and Its Causes—John O. Bower, Clinical Professor of Surgical Research, Temple University School of Medicine, Philadelphia.

Surgical Problems in Acute Appendicitis—Karl A. Meyer, Medical Superintendent, Cook County Hospital.

Discussion: Joseph Brennemann, Milton Portis, Carl B. Davis, Hugh McKenna, George deTarnowsky, Frederick Dyas.

*Regular Meeting, Wednesday, November 14, 1934*

#### LAY EDUCATIONAL PROGRAM

##### You and Your Germs:

Natural Resistance to Germs—Lloyd Arnold, Professor Bacteriology and Preventive Medicine, University of Illinois.

Man's Conquest of Germs—Logan Clendening, Professor Clinical Medicine, University of Kansas.

*Regular Meeting, Wednesday, November 21, 1934*

#### AMERICAN MEDICAL ASSOCIATION NIGHT

"Plans for Economic Security"—Walter L. Bierring, President.

"The Health Insurance Program"—William C. Woodward, Director, Bureau of Legal Medicine and Legislation.

"Some Suggestions Toward Medical Cooperation"—Edward H. Carey, Past President.

## Marriages

ALONZO NEWTON BAKER to Miss Esther McLaren, both of Marion, Ill., October 25.

ARTHUR E. PERLEY, Quincy, Ill., to Miss Ruth Buss in September.

## Personals

Dr. Ralph H. Kuhns, formerly Director of Research at the Illinois State Psychopathic Institute, has been appointed Instructor in Neuropsychiatry at the University of Illinois, College of Medicine.

Dr. Max Thorek addressed the Ohio State University Medical School in the forenoon of November 26, and in the afternoon the Academy of Medicine of Columbus. The subjects were "Electrosurgery in the Treatment of the Carcinoma of the Rectum" and "Electrosurgical Obliteration of the Gallbladder" respectively.

Dr. Aaron Arkin has been promoted to associate clinical professor of medicine at Rush Medical College.

The Christian County Medical Society was addressed in Taylorville, October 24, by Dr. Max S. Wien, Chicago, on "Relation of Dermatology to General Medicine."

At a meeting of the Will-Grundy County Medical Society, October 24, Dr. Edwin W. Hirsch, Chicago, discussed "Pathology, Diagnosis and Treatment of Prostatic Hypertrophy."

At a meeting of the Chicago Pathological Society, November 12, speakers included Dr. H. Gideon Wells and Maud Slye on "Tumors of Islet Tissue with Hyperinsulinism in a Dog."

Speakers before the Chicago Gynecological Society, November 16, included Drs. Gustav Kolischer and Arthur H. Curtis on pathologic features of the female urethra and bladder, respectively.

Speakers before the Pike County Medical Society in Barry, October 25, were Drs. Edwin P. Sloan on thyroid deficiencies and Andrew J. Casner, types of pneumonia and their significance; both physicians are from Bloomington.

Members of the faculty of the University of Iowa College of Medicine, Iowa City, presented the program before the La Salle County Medical Society in Ottawa, October 18; Drs. Dean M. Lierle discussed the common cold and Nathaniel G. Alcock, diathermy in treatment of enlarged prostate.

Dr. Joseph L. Miller will deliver the presidential address at the nineteenth annual meeting of the Institute of Medicine of Chicago, December 4; his subject will be "The Influence of Claude Bernard's Experimental Methods on Medicine."

Dr. Bernard H. Nichols, Cleveland, addressed the Chicago Roentgen Society, November 8, on "Value of Roentgenologic Examination in Right Abdominal Pain," and Dr. William E. Anspach, "Atelectasis, Bronchiectasis and the Triangular Shadow in Children."

Dr. Dean Lewis, professor of surgery, Johns Hopkins University School of Medicine, delivered the third E. R. DeBoth Memorial Lecture at Rush Medical College, November 6, "The Story of the Hypophysis."

Dr. James J. Walsh, Camp Custer, Mich., has been named head of the medical department of the Veterans' Administration Facility at Danville, succeeding Dr. Aldine E. Morgan, who is being transferred to Oregon.

Dr. Achille Mario Dogliotti, professor of surgery, Royal University of Turin, Italy, addressed the Italian Academy of Medicine of Chicago and the staff of the American Hospital, October 22, on "Ventriculography" and "Treatment of Facial Spasm."

The Chicago Laryngological and Otological Society was addressed, November 5, by Drs. Andrew C. Ivy on "Physiology of the Labyrinth"; Sherman L. Shapiro, "Pseudocerebellar Abscess," and Francis L. Lederer, "Hemorrhage in Lung Cancer."

Speakers before the Institute of Traumatic Surgery, November 19, were Drs. Edson B. Fowler, Evanston, Ill., and Harry R. Hoffman on "A New Operation for Habitual Dislocation of the Shoulder" and "Traumatic Neuroses," respectively.

Carlos I. Reed, Ph.D., assistant professor of physiology, University of Illinois College of Medicine, addressed the Chicago Club for the Study of Arthritis, November 7, on "Metabolic Changes in Arthritis Patients Under Viosterol Therapy."

At a meeting of the Iowa and Illinois Central District Medical Association in Moline, October 31, Dr. Foster Kennedy, New York, discussed

"The Interdependence of Neurology, Psychiatry and General Medicine," and Dr. Grandison D. Royston, St. Louis, "The Care of Obstetrical Damage to the Cervix and Pelvic Supports."

Dr. Carl E. Badgley, professor of surgery, University of Michigan Medical School, addressed the Chicago Orthopedic Club, November 16, on "The Value of the Thrust Graft in Atrophic and Sclerotic Nonunion." Mr. Maurice A. Bernstein also spoke on "Cysts of the Semilunar Cartilage."

Speakers before the Peoria City Medical Society, November 6, were Drs. Clarence Baxter Brown on "Ectopic Pregnancy"; Emil Z. Levitin, "Schizophrenia"; William A. Hinckle, "Anatomical Causes of Proctologic Pathology," and Harry A. Durkin, "Prognostic Consideration of Heart Diseases."

Dr. Clifford G. Grulee gave a public lecture, November 22, one of a series sponsored by the Chicago Heart Association on "The Spoiled Child in Heart Disease." Dr. Newell C. Gilbert opened the series, November 8, with a discussion of the principal causes of heart disease.

A dinner was held in honor of Dr. Henry S. Houghton, director of clinics and associate dean of the Division of Biological Sciences, University of Chicago, November 5. Dr. Houghton recently resigned to become advisory representative of the China Medical Board of the Rockefeller Foundation. Speakers at the dinner included Frederic C. Woodward, LL.D., vice president of the university; Frank R. Lillie, dean, and Dr. Dallas B. Phemister, professor of surgery in the division.

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## News Notes

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—At a meeting of the Chicago Surgical Society, November 2, speakers included Drs. William F. Reinhoff, Jr., Baltimore, on "Total and Partial Pneumonectomy," and Fremont Chandler and Eric Oldberg, "Extrapyramidal Tract Section for Congenital Spasticity with Athetosis."

—The Rockefeller Foundation has made a grant of \$50,000 to the University of Chicago to carry on biologic research. This is an increase over the annual grant of \$30,000 which the foundation has given to the university for the last five years. The additional \$20,000 will be used to cover the expenses of the sex research



program, which until this year has been financed by the committee on research in problems of sex of the National Research Council.

—The Illinois State Department of Health calls attention to the fact that silver nitrate solution is not being used as contemplated by the law enacted last year requiring the use of this material in the eyes of all new-born children. The department furnishes this solution without cost. Four counties in the state have obtained no silver nitrate solution at all from the department this year, and nearly a dozen others have obtained only insignificant amounts.

—The state department of health and the Illinois State Dental Society are cooperating in a fall and winter dental health survey of school children. Diet and periodic dental inspections with the aim of preventing tooth decay will be emphasized. In the educational program to coincide with the survey, prenatal care, especially from the standpoint of the diet of prospective mothers, and the diet of children will be particularly stressed in connection with efforts to prevent dental decay. The periodic inspection of teeth and the prompt correction of caries were also emphasized.

—The Hebrew University Society was recently organized with Dr. Maurice Lewison as president. The purpose of the society is to support the Hebrew University in Palestine, particularly the university hospital and medical center, which is being built on Mount Scopus. Other officers are Drs. Alfred A. Strauss, vice president; Mayer H. Lebensohn, treasurer, and Charles Newberger, secretary. The society is affiliated with the American Jewish Physicians Committee of New York, of which Dr. Nathan O. Ratnoff is president and Dr. Emanuel Libman is chairman of the executive committee.

—Dr. Joseph B. De Lee, founder of the Chicago Lying-In Hospital, was presented with the Jesse L. Rosenberger Medal by the University of Chicago, October 28, in "recognition of his great service to humanity and of his life-time of untiring devotion to his profession and his widespread influence on the practice and teaching of obstetrics." The presentation was made during a celebration given by the hospital board and the Mothers' Aid Club, observing the thirtieth anniversary of the latter and the sixty-fifth birthday

of Dr. De Lee. A graduate of Northwestern University School of Medicine, 1891, Dr. De Lee is professor of obstetrics and gynecology at the Division of Biological Sciences, University of Chicago. In 1895 he founded the Chicago Lying-In Hospital, which, since 1927, has been affiliated with the University of Chicago. Formally dedicated in 1931, the building cost \$1,900,000 and has a capacity of 157 beds.

—At the sixtieth annual meeting of the Southern Illinois Medical Association in Mount Vernon, November 1-2, the following speakers were included on the program:

Dr. James J. Donahue, East St. Louis, Obstruction at the Pylorus.

Dr. Gershom J. Thompson, Rochester, Minn., Transurethral Prostatic Resection.

Dr. Percy H. Swahlen, St. Louis, Obstetrics.

Dr. Fred Z. Havens, Rochester, Minn., Malignancies About the Face.

Dr. Charles S. Skaggs, East St. Louis, What Is the Future of Medicine?

Dr. Frederick O. Fredrickson, Chicago, Analysis of Gastro-Intestinal Complaints With Reference to Diagnosis.

Dr. Harry Phillips, Anna, Modern Advances in Serology.

Dr. John B. Moore, Benton, Fractures.

Dr. Duncan D. Monroe, Edwardsville, The Home Treatment of Tuberculosis.

Dr. James S. Johnson, Cairo, Eye Injuries.

—Dr. Richard Jaffe, Director of the Pathology Laboratory, Cook County Hospital, will conduct pathological conferences on the pediatric material from the Children's Department, Cook County Hospital on the following dates: December 14th, 1934, January 11th, February 8th, March 8th, April 5th and May 3rd, 1935.

Conferences begin at 1:00 P. M. and end at 2:00 P. M.

—Diphtheria is not only much more prevalent but it appears to be also decidedly more fatal than last year. During September of this year, for example, one in each 10 cases reported terminated fatally whereas in that month of 1933 all but 1 in each 13 patients recovered. This fact emphasizes the importance of early diagnosis and the prompt use of antitoxin in cases of this disease. There were 15 deaths from diphtheria in September of this year against 8 in that month

of 1933. For October there were over 300 cases reported this year against 186 last. Sharp outbreaks have appeared during recent weeks in Alexander, Jefferson, Kankakee, Madison, Randolph, Vermilion and Wabash Counties.

—At the meeting of Southern Illinois Medical Association, November 1-2, the following officers were elected for 1934-35: President, I. L. Foulon, East St. Louis; 1st vice-president, T. S. Templeton, Pinckneyville; 2d vice-president, G. C. Otrich, Belleville; secretary-treasurer, Ben Fox, West Frankfort; assistant secretary, G. C. Otrich; censors, H. A. Cables, East St. Louis, Andy Hall, Mt. Vernon, and Walter Wilhelmi, East St. Louis.

## Deaths

ARTHUR SEYMOUR ALDERSON, Thayer, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1906; aged 64; died, October 3, in St. John's Hospital, Springfield, of cerebral hemorrhage.

OTIS WOOD ALLISON, Danville, Ill.; Rush Medical College, Chicago, 1903; a Fellow, A. M. A.; aged 57; on the staff of the Lake View Hospital, where he died, October 28, of aplastic anemia and acute myeloid leukemia.

HERMAN EARHART ALMES, Chicago; Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1889; a Fellow, A. M. A.; Western Pennsylvania Medical College, Pittsburgh, 1890; aged 66, died, October 13, of carcinoma.

ERNEST C. BLANCK, Park Ridge, Ill.; Jenner Medical College, Chicago, 1907; aged 72; died, October 10.

WILLIAM RALPH EDDLEMAN, Anna, Ill.; University of Tennessee, College of Medicine, 1912; aged 46; died, October 17, from injuries received in an automobile accident.

JOSEPH W. ENOS, Chicago; Hahnemann Medical College and Hospital, Chicago, 1881; aged 76; died, October 11, of chronic myocarditis.

JOHN C. FURLONG, Spring Grove, Ill.; Rush Medical College, Chicago, 1891; member of the Illinois State Medical Society; past president of McHenry County Medical Society; aged 71; died, October 8, in the Mercy Hospital, Janesville, Wis., of injuries and shock following an automobile accident.

ELMER EDGAR GRABLE, Chicago; National Medical University, Chicago, 1909; aged 73; died, October 17, of carcinoma of the liver.

JAMES WARREN HAMILTON, Mount Vernon, Ill.; Barnes Medical College, St. Louis, 1895; member of the House of Delegates of the American Medical Association, 1914-1915; member of the Illinois State Medical Association; aged 63; died, August 24.

ALBERT O. HOLLIE, Chicago; Chicago College of Medicine and Surgery, 1911; aged 53; died, October 14, of gastric ulcer and hemorrhage and nephritis.

LEANDER D. KEITH, Anna, Ill.; Hospital College of Medicine, Louisville, Ky., 1896; member of the Illinois State Medical Society; aged 69; died in October as the result of a fall from a third-story window of the Missouri Baptist Hospital, St. Louis.

LEO CHARLES KINSELLA, Chicago; Chicago Medical School, 1923; member of the Illinois State Medical Society; aged 52; was found dead, October 24, of carbon monoxide poisoning.

LEWIS LINN McARTHUR, Chicago; Rush Medical College, Chicago, 1880; a Fellow, A. M. A.; member of the Colorado State Medical Society and the Society of Clinical Surgery; member and past president of the American Surgical Association; member and formerly chairman of the American section, International Surgical Congress; past president of the Chicago Medical Society; fellow of the American College of Surgeons; since 1886 chief surgeon of St. Luke's Hospital and consulting surgeon to the Michael Reese Hospital; consulting surgeon to the Grant and Evanston (Ill.) hospitals; was commissioned a major in the Medical Reserve Corps in 1917 and director of Base Hospital, number 14; Chevalier of the Order of Leopold of Belgium; aged 76; died suddenly, November 5, of heart disease.

ROY H. McKNIGHT, Kansas, Ill.; Dearborn Medical College, Chicago, 1906; aged 52; was found dead, October 1, of a self inflicted bullet wound.

FRANK A. METCALF, Chicago; Hahnemann Medical College and Hospital, Chicago, 1897; formerly professor of materia medica and internal medicine at his alma mater; on the staff of the Jackson Park Hospital; aged 61; died, October 20, of essential hypertension and cerebral thrombosis.

WILLIAM C. MITCHELL, Bradford, Ill.; St. Louis College of Physicians and Surgeons, 1904; served during the World War; aged 59; died, September 21, in the Veterans' Administration Facility, Hines, of lethargic encephalitis, parkinsonian syndrome and bronchopneumonia.

ROBERT WILLIAM OAKLEY, Moline, Ill.; Northwestern University Medical School, Chicago, 1902; served during the World War; aged 59, died, October 18, in the Moline City Hospital.

ROBERT ALEXANDER TWITCHELL, East St. Louis, Ill.; American Medical College, St. Louis, 1890; member of the Illinois State Medical Society; aged 77; died, September 21.

LEON JOSEPH WITKOWSKI, Chicago; Northwestern University Medical School, Chicago, 1907; a Fellow, A. M. A.; on the staff of the Englewood Hospital; aged 51, died, October 14, of cerebral emboli and renal calculus.

SAMUEL YOFFE, Chicago; Chicago College of Medicine and Surgery, 1916; aged 44; died, October 19, in the University of Pennsylvania Hospital, Philadelphia, of pneumonia.



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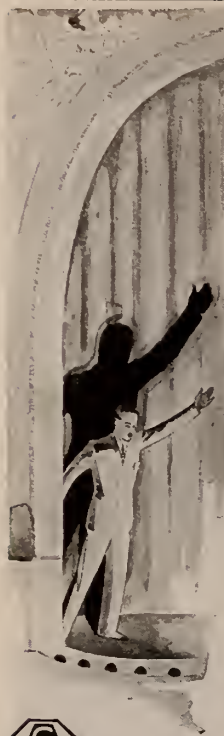
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## Book Reviews

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 14, Number 5. Lahey Clinic Number—October, 1934. Octavo of 260 pages with 72 illustrations. Per clinic year, February, 1934 to December, 1934. Paper \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1934.

Contributors to this number are Doctors Lahey, Clute, Cattell, Swinton, Overholt, Horrax, Poppen, Haggart, Hoover, Hicks, Sise, Jordan, Kiefer, Hurxthal, Allan, Macy.

A TEXTBOOK OF PATHOLOGY FOR NURSES: By Coleman B. Rabin, B.S., M.D., Lecturer in Pathology in The Mount Sinai Hospital School of Nursing; Assistant in Morbid Anatomy, Adjunct Physician and Assistant Radiologist to The Mount Sinai Hospital, New York City. 243 pages with 61 illustrations. Philadelphia and London: W. B. Saunders Company, 1934. Cloth, \$1.75 net.

DEFINITE DIAGNOSIS IN GENERAL PRACTICE: By W. L. Kitchens, M.D. With a Foreword by John H. Musser, B.S., M.D., F.A.C.P., Professor of Medicine, in the Tulane University of Louisiana School of Medicine. Large Octavo of 1,000 pages. Philadelphia and London: W. B. Saunders Company, 1934. Cloth, \$10.00 net.

This new book is designed for the greatest possible use for the largest number of doctors. The book is divided in two parts—Part I includes, first, a symptom index which presents in alphabetical order 506 symptoms of 407 diseases. Part II presents, first, 506 diseases, under each of which are presented those symptoms of diagnostic significance. Following the presentation of diseases there is a disease index listing in alphabetical order the 506 diseases.

DISEASES OF WOMEN. By ten teachers under the direction of Comyns Berkeley, M.D. Fifth edition. Baltimore. William Wood & Co. 1934. Price \$6.00.

This edition brings the knowledge of the subject up-to-date. The modern knowledge of the functions of the ovaries and other endocrines, and their relation to menstruation and its disorders, has been dealt with fully. Both the arrangement and subject matter has also been reviewed.

BENIGN, ENCAPSULATED TUMORS, IN THE LATERAL VENTRICLES OF THE BRAIN. By Walter E. Dandy, M. D. Baltimore. The Williams and Wilkins Company, 1934. Price, \$4.50.

In this work the author tells the surgical and diagnostic story of a group of tumors occupying the latter lateral ventricle of the brain. These together with a quite similar group recently reported from the third ventricle, are from the last secret abodes of tumors in the brain. The results cover a period of fifteen years and necessarily progressively reflect the important advances that have occurred on the operative front during this period.

A DECADE OF PROGRESS IN EUGENICS. Baltimore. William Wood & Company. 1934.

This work is a compilation of scientific papers of the Third International Congress of Eugenics. These papers and their accompanying exhibits, marked the advance made in the field of eugenics, between the meetings of the Second International Congress in 1921 and the Third Congress in 1932.

AIDS TO OBSTETRICS. By Leslie Williams, M. D. Tenth Edition. Baltimore. William Wood & Company. 1934. Price, \$1.25.

In this edition the general arrangement is similar to that which has been used in previous editions. The subject matter has been almost completely rewritten, so as to bring it into conformity with the modern theory and practice of obstetrics.

AIDS TO OPERATIVE SURGERY. By Cecil T. G. Wakely, Second Edition. Baltimore. William Wood & Company. 1934. Price, \$1.25.

It is thirteen years since the first edition of this little book. Much has happened during that interval in the way of progress in surgery. The book has been almost completely rewritten and the arrangement of the chapters has been altered to bring it in line with latter text books on operative surgery.

AIDS TO OSTEOLOGY. By Philip Turner, F. R. C. S. in Collaboration with N. L. Eckhoff, F. R. C. S. Third Edition. Baltimore. William Wood & Company. 1934. Price, \$1.50.

The chief change in the present edition is that the nomenclature recommended by the anatomical society has been adopted throughout. A revision of the text has been carried out.

SURGICAL ANATOMY. By C. Latimer Callander, A. B., M. D., F. A. C. S., Assistant Clinical Professor of Surgery and Topographic Anatomy, University of California Medical School; Associate Visiting Surgeon to the San Francisco Hospital. With a Foreword by Dean Lewis, M. D., Sc. D., LL. D., F. A. C. S. 1115 pages with 1280 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1933. Cloth, \$12.00 net.

In this work the author described typographically the anatomic surgical approaches, the paths of extension of pathologic processes, and the common operation. As the author states in his preface the work is not intended as a systematic treatise; it is intended to be explanatory and utilitarian rather than encyclopedic. Cross referencing is used throughout; most of the illustrations are original drawing of dissected material.

The Rockefeller Foundation Report, 1933, New York, 49 West 49th St.

TO REMIND. By Hardy, Sir William Bate. Baltimore: The Williams & Wilkins Company, 1934. Price, \$1.00.

This work is a biological essay, being series No. 2 of the Abraham Flexner lectures.

(Continued on page 30)



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## Book Reviews

(Continued from page 24)

**THE PRINCIPLES OF THERAPEUTICS.** By Francis Richard Fraser. Baltimore: The Williams & Wilkins Company, 1934. Price, \$2.00.

This is series No. 3 of the Abraham Flexner lectures.

**GYNECOLOGY.** By Brooke M. Anspach, M. D. Fifth edition reillustrated, reset and completely revised. 679 illustrations of which 10 are in colors. Philadelphia, London and Montreal, 1934. Price, \$9.00.

In this edition the author has given the benefit of his wide experience and has brought the subject strictly up-to-date. The work should be in the library of every gynecologist.

**MINOR SURGERY IN GENERAL PRACTICE.** By W. Travis Gibb, M. D. With 148 illustrations. New York: Paul B. Hoeber, 1934. Price, \$5.00.

This work is written for the general practitioner, no matter what his age or rank of practice. Any practicing physician or surgeon will find the work a great convenience.

**AMEBIASIS AND AMEBIC DYSENTERY.** By Charles F. Craig, M. D. Illustrated. Springfield, Ill.-Baltimore, Md.: Charles C. Thomas, 1934. Price, \$5.00.

This work presents the most complete information of Amebic infection from the (1) laboratory, (2) epidemiological, and (3) clinical standpoints. This book adequately answers the demand for authoritative and up to date information on amebiasis. It brings together the data of practical value and the most modern knowledge of the Diagnosis Prophylaxis, Etiology, Epidemiology, Pathology, Symptomatology and Treatment of Amebic Infection.

The book contains 315 pages, 54 illustrations, 20 tables.

**ELECTROCARDIOGRAPHY.** By Chauncey C. Maher, M. D. Baltimore: William Wood & Company. 1934. Price, \$4.00.

As the author points out in his preface, the most rapid advances in the study of heart disease have been made in the physiological field. It has been primarily through the use of the electrocardiograph that knowledge of the mechanism of the heart beat has been increased. The introduction of the electrocardiograph into the laboratories of most hospitals has placed many physicians other than cardiologists at a disadvantage concerning its use. This new book meets the need for a brief concise treatise on electrocardiography for use by the general practitioner, the medical student, and the internist or specialist exclusive of the cardiologist, that they may learn the value of the electrocardiogram in diagnosis of cardiac disease, and learn to correlate the electrocardiographic findings with their clinical data. The author's experience in giving instruction in this field not only to undergraduates, but to post-graduate students at the Cook County Hospital, enables him to present in this volume just exactly the practical infor-

mation every physician needs without burdening it with controversial matters, which, if necessary can be found elsewhere. The 150 excellent illustrations will be found of immense help to a proper understanding of the subject.

**RECENT ADVANCES IN ALLERGY.** By George W. Bray, M. D. With foreword by Arthur F. Hurst, M. D. Second edition. 106 illustrations including 4 colored plates. Philadelphia: P. Blakiston's Son & Co., Inc. 1934. Price, \$5.00 net.

In this edition new chapters have been added on the association of allergic with other diseases, on nasal allergy, and on other systemic manifestations. Many of the chapters have been revised and enlarged; several sections have been entirely rewritten.

**APPLIED ANATOMY.** By Gwilym G. Davis M. D. With six hundred and seventy-four illustrations, mostly from original dissections and many in color. Philadelphia, London, Montreal: 1934. J. B. Lippincott Company. Price, \$9.00.

As stated by the author to the first edition, this work aims to teach surgical principles through the medium of anatomical relation. As the book is not an operative surgery, operative descriptions are merely sketched and the anatomical relations conjoined. In this edition many of the sections have been entirely rewritten and the book has been entirely reset. This work is strictly up-to-date and should be in the library of every surgeon, specialist and general practitioner.

**THE PATIENT AND THE WEATHER.** By William F. Petersen, M. D. Volume III, Mental and Nervous Diseases. Ann Arbor, Michigan: Edwards Brothers. 1934. Price, \$—.

This volume presents studies that have to do with mental and nervous disease.

This is the third of a series of such studies. In this volume is published the detailed effect of meteorological alterations, the cyclonic circulation and the season.

**INSTITUTIONAL CARE OF MENTAL PATIENTS IN THE UNITED STATES.** By John Maurice Grimes, M. D. Chicago: Published and distributed by the author. 1934. Price, \$3.00.

This work represents the effort of a two years' study by the author and is a durably bound 160-page volume. It contains a great wealth of information. It is a warm pulsing story that will not only acquaint you with facts not available from other sources but will also stir you emotionally. The book represents a great amount of effort on the part of the author who is to be commended for his efforts.

**MICROBIOLOGY AND ELEMENTARY PATHOLOGY FOR THE USE OF NURSES.** By Charles G. Sinclair, M. D. With 102 illustrations, some in colors. Philadelphia: F. A. Davis Company, publishers. 1934. Price, \$2.75 net.

This edition incorporates the important advancements which have appeared in medical literature during the past three years.



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